



INSIDE DOPE

by GEORGE F. TAUBENECK

Story of the Week
Gags of the Week
Announcing: 'It's a Great Life'
Today's Toughest Job
Eyewitness Account

Story of the Week

Forced down in the middle of the Pacific Ocean, four transcontinental plane passengers shared a life-raft briefly. A capitalist, a fascist, a communist, and a union laborite were on the leaky raft, which was sinking rapidly in mid-ocean.

The capitalist, clutching frantically at his valuable luggage, was weighed down by same, and drowned first.

The fascist, raising one arm in a stanch military salute to his idol, fell overboard and quickly went the way of his capitalist companion.

The communist vented an impassioned speech from force of habit and became so absorbed with his propaganda utterances that his mouth soon filled with salt water. He, too, was drowned.

The union laborite, however, fared better than his hapless confreres. Swimming diligently, he survived until he heard a whistle from a rescue ship. He quit work, of course, when he heard the whistle, like all good union men do. And Davy Jones claimed the last of the quartet.

Moral: Selfish, temporary theories and doctrines are mortal; they lead only to Davy Jones' Locker.

Gags of the Week

Definition of a Vacation Resort: A place where no one knows how unimportant you are at home.

Fashion Report: The latest style for lovely girls, we gather, is the gownless evening strap.

Announcing: 'It's a Great Life'

"Inside Dope" has been working five and six nights a week during the last few years on a special project for YOU. Object of these overtime labors: to write and publish a set of books on merchandising and selling which our friends in the industry would read, and profit therefrom—when it became time to sell again.

Well, good friends, that time has arrived—with a vengeance.

First two books in this project, "One Foot in the Door" (for everyone in our business) and "The Marshal's Baton" (for sales executives and ambitious juniors) have been purchased in large quantities and used profitably by several thousand subscribers to AIR CONDITIONING & REFRIGERATION NEWS, and by merchandisers in other fields as well.

This week "Inside Dope" announces the third book in his laugh-learn-profit series: "It's a Great Life." Like the other two, it spices practical suggestions with humor, with the purpose of making it fun to read.

Today's Toughest Job

This latest book, "It's a Great Life," is a particularly timely "how to" supercharger for salesmen. Practical "know how" suggestions in this book are rammed home with case histories (how somebody else did it) and made easy to remember by associating them with funny stories.

Above all, "It's a Great Life" sells salesmen on selling as a career. And that task—getting and keeping salesmen, and inspiring them to sell hard—is the most important, toughest-nut-to-crack problem which most businessmen have today, according to (Concluded on Page 17, Column 1)

Commissions for Servicemen Ruled Part of Base Pay

DETROIT—The fact that commissions earned by a serviceman who sells a large piece of refrigeration equipment, such as a walk-in box or a freezer, are quite substantial does not exempt them from being included as part of the base pay of the serviceman for purposes of computing overtime payments.

That ruling was given recently by William S. Singley, Cleveland regional director of the Wage and Hour division, U. S. Department of Labor, in reply to a query sent him by Frederick R. Bolton, executive secretary of the Refrigeration Contractors Association of Detroit.

The text of Singley's letter to Bolton follows:

"This is in reply to your letter of February 24 in which you inquire about the necessity for including sales commissions in the regular rate of pay of refrigerator salesmen.

"You state that some of your members allow their servicemen to act as salesmen and pay the employees commissions on the business they turn in.

"You state that you understand and agree with the reasonableness of the requirement for including the commissions in the regular rate insofar as the commissions relate to the sale of repair parts and other items involved in the service work the employees ordinarily render.

"The problem that now concerns you involves the actual selling of large equipment such as freezers, reach-in, and walk-in boxes which are rather expensive and result in large commissions.

"You point out that this type of selling is done by the employees 'after hours and on their own time.'

(Concluded on Page 4, Column 5)

NEMA Freezer Sales Drop 11% for Feb.

NEW YORK CITY—Home and farm freezer sales for February as reported to the National Electrical Manufacturers Association by 30 member companies totaled 24,240 units, 11% fewer than were sold in January.

For the two months, January and February, world home freezer sales by Nema companies totaled 51,445, of which 50,704 were sold in the United States.

Declines in the 7 to 8.9-cu. ft. and the 13 to 16.9-cu. ft. categories were responsible for the February drop in sales, the Nema statistics showed. These could not be offset by strong gains in sales of units below 5-cu. ft. capacity and in the 11 to 12.9-cu. ft. group.

The 7 to 8.9-cu. ft. category, in which the largest number of units is usually sold, dwindled from 9,444 in January to 4,523 in February. This loss dropped the category from first to second place in the two months total. Its 13,967 units sold was bested (Concluded on Page 25, Column 2)

Philco Reports Dollar Volume Rise of 15%

PHILADELPHIA—Dollar volume of Philco refrigerator sales is running 15% ahead of a year ago, it was stated here by William Balderston, president of the company.

The announcement came in the face of a cutback in refrigerator production of approximately 12% at the Connersville, Ind. plant operated by Philco. The cutback, resulting in a four-day week, was in line with the company's policy of adjusting production to meet present demands as well as those for the foreseeable future.

Booths for Mfrs. Will Feature New Convention

NEW YORK CITY—Forty-first annual convention of the National Electrical Wholesalers Association will be staged in the Netherland Plaza hotel, Cincinnati, during the first week in May.

The convention will be divided into meetings of the appliance division on May 2 and 3 and of the apparatus and supply division on May 5 and 6. A general meeting will be staged on May 4.

An innovation this year will be the establishment of more than 100 manufacturer's conference booths for use at specified hours which will not conflict with conference sessions, reports Charles G. Pyle, managing director.

The appliance division meetings will feature an address by Ross D. Siragusa, president, Admiral Corp. The subject of servicing television receivers will be presented by E. Anthony, chairman, subcommittee on television installation and maintenance of the service and repair parts committee.

W. A. Blees, general sales manager, Crosley Div., Avco Mfg. Corp., will be a guest speaker on May 3. M. F. Cotes, executive vice president, Duo-Therm Div., Motor Wheel Corp., (Concluded on Back Page, Column 5)

Coulter Is General Manager at Lehigh

LANCASTER, Pa.—Resignation of J. C. Miller as general manager of Lehigh Mfg. Co. effective April 30 and the appointment of Clayton L. Coulter to succeed him has been announced here by Frank Shumann, president of Lehigh Foundries, Inc. Miller will move to Berlin, Wis. where he will become executive vice president of the Berlin Chapman Co. there, manufacturer of heavy processing equipment. He will assume his new duties soon after May 1.

Coulter, who will head Lehigh's refrigeration operations, joined the firm about 2½ years ago as district manager in the Detroit area. Subsequently he was promoted to sales manager and has been assistant general manager and plant manager for the last 18 months.

West Coast RSES Meeting Opens May 6

SAN DIEGO, Calif.—"Your Future in the Refrigeration Industry" will be the theme of the third annual convention of the California Association, Refrigeration Service Engineers Society, to be held in the San Diego hotel here from Friday through Sunday, May 6-8.

Eight addresses bearing on various aspects of that theme are scheduled for Saturday and Sunday. Interspersed among them will be a number of short, entertaining educational skits, according to the program compiled by General Chairman Ralph French. Ninety-minute-long question and answer periods will start off both these sessions.

Friday will be devoted to board and committee meetings and the elections of officers for the coming year. The new board and officers will be introduced to the membership at the closing assembly Sunday afternoon.

Top entertainment features of the convention will be a trip to Tijuana, Mexico, Friday evening and the annual dinner-dance Saturday evening. A program for the ladies, including (Concluded on Page 4, Column 1)

Price Reductions

Harvester Cuts Freezers \$25-\$28

CHICAGO—International Harvester Co. has announced price reductions on its two models of home freezers. The price of the 11-cu. ft. freezer was reduced \$28 and the 15-cu. ft. box, \$25.

The price adjustment followed the reduction made on the company's line of household refrigerators which became effective March 18.

The revised suggested list prices for the two freezers will now be \$370 for the 11-cu. ft. model and \$450 for the 15-cu. ft. freezer. Both prices are f.o.b. factory.

The prices of other products manufactured by the company remain unchanged.

Remington Room Cooler Prices Fall

CORTLAND, N. Y.—Price reductions ranging from \$30 to \$65 on three room air conditioner models were announced recently by Herbert L. Laube, president, Remington Air Conditioning Div. of Remington Corp.

New national suggested list prices for all air-cooled models in the Remington line are:

Model	Old Price	New Price
6 (½ hp.)		
The Bedfellow ...	\$399.50	\$369.50
8 (¾ hp.)		
The Professional ...	499.50	434.50
10 (1¼ hp.)		
The Director ...	795.00	759.00
12 (1½ hp.)		
The Overton ...	895.00	895.00

The hermetic motor compressor assemblies used in Models 6 and 8 window units carry a 5-year replacement warranty for which there is an extra charge of \$5.00.

No recent price changes have been made in the 1 and 1½-hp. water- (Concluded on Page 4, Column 5)

Water Heater Price Pared by Hotpoint

CHICAGO—A \$10 price reduction on Hotpoint water heaters, made possible by reducing the company's former 10-year warranty to a 1-year warranty, was announced here recently by Stanley E. Wolkenheim, manager of the water heater department.

The move was made as a result of a survey which indicated that only 5% of water heater purchasers in the last 12 months were influenced by the 10-year warranty.

In addition to the price reduction, Wolkenheim said, the new plan includes a liberal replacement program for tank failures over nine years on a sliding discount basis.

He explained that Hotpoint had adopted the 10-year warranty plan shortly after the war to protect dealers and consumers at a time when many new manufacturers were entering the field.

Commenting on the other aspects of the survey, Wolkenheim said that more than 50% of the consumers bought water heaters in 40 to 52-gal. (Concluded on Back Page, Column 1)

Thor Clothes Washer, Dishwasher Reduced

CHICAGO—Thor Corp. has made a 13% slash in the retail price of its "Automagic" clothes and dishwashers, effective April 25.

The cut will reduce the clothes washer's price from \$229.50 to \$199.50. The dishwasher will be reduced from \$249.50 to \$219.50. The combination clothes and dishwasher will be lowered from \$309.45 to \$279.45.

Repeal of Calif. Dairy Selling Law Is Blocked

Senate Committee Refuses To Report Bill Following Testimony of Contractors

SAN FRANCISCO—California refrigeration contractors have won another round in their lengthy battle with ice cream manufacturers and distributors over the sale and maintenance of refrigeration equipment.

The contractors' latest victory came when the Senate Committee on Agriculture, by a vote of 7 to 4, refused to report Senate Bill No. 393. This bill, sponsored by the ice cream industry and the State Department of Agriculture, would have repealed a provision of the state agricultural code which reads:

"The selling of any new equipment by a distributor or ice cream manufacturer to any customer or individual at a price other than the printed retail list price of the equipment ... shall be prohibited."

This provision was among certain amendments to the so-called "ice cream code" which were adopted two years ago by the California legislature. The Refrigeration Contractors Association of Northern California (Concluded on Page 25, Column 3)

Westinghouse Ships Upright Freezer

MANSFIELD, Ohio—Distribution of the Westinghouse upright home freezer will begin on a limited regional basis next month.

Plans are being made to "preview" the home freezer in Atlanta during the second week in May, and distribution of the product will begin in the southeastern part of the country shortly thereafter.

Hand-built models of the Westinghouse upright freezer had been displayed at some trade showings during the past two years, but production at the East Springfield works of the company did not get underway until this Spring.

The Westinghouse home freezer is similar in appearance to the Westinghouse refrigerator. It has a special section for fast freezing at -10° to -15° F., and two additional storage compartments held at 0° F. Its rated capacity is 6 cu. ft.

Design of the refrigeration system is said to be such that frost will collect only on the evaporator, permitting defrosting in a manner similar to that used with electric refrigerators.

IN THIS ISSUE

Convenience and savings are important sales factors in home freezer merchandising, but most sales are not completed until prospect is shown their real significance through demonstration. How to conduct an easy-to-understand, sales clinching demonstration is outlined in detail on page 12.

14,000 separate parts . . . 80,000 tools and dies . . . a factory within a factory. . . It takes all these and more to keep up with the demand for Frigidaire replacement parts. Read the inside story on page 24.

The "teeth" in a municipal safety code are its administrative provisions. How they can be sharpened to do an effective job is described by John C. Rehard, Detroit's chief safety engineer, on page 22.



FREE

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TO INVESTIGATE THE
NEW *fedders*
WATER COOLERS**

● Backed by 17 years of producing water coolers for one of the oldest private trademarks in the industry, Fedders now puts its nameplate on its own line of water coolers.

Whether you want bottle or bubbler coolers, Fedders offers you highest quality in fast-moving, popular models to fit the majority of needs with minimum investment. Write for the FACTS ...FREE.



FEDDERS-QUIGAN CORPORATION, Dept. AC-1, BUFFALO 7, N. Y.

Display Cases Aid Store's Volume of Perishables To Rise 25%

NEW BEDFORD, Mass.—Completely refrigerating its new store here was a profitable move for Liberty Supermarket, according to Joseph Ferreira, co-owner.

After three weeks, he was asked to compare results of the new market's operation with those of the old store.

"In every department," he said, "we not only see a saving on perishables, but have so far realized an over-all 20-25% increased movement in such items as celery, watercress, cheese, fish, and other foods that spoil quickly."

Hill and Tyler cases are used in the market.

Perlick Brass Moves Into New Milwaukee Quarters

MILWAUKEE—Perlick Brass Co. is currently moving into its newly acquired building that contains 27,000 sq. ft. of storage, manufacturing, and office space, Walter Perlick, sales manager, has announced.

Perlick also announced the appointment of R. C. Robinson as company sales representative for the state of California. Robinson, who formerly represented the firm in Indiana, will have his headquarters at 1406 S. Grand Ave., Los Angeles.

Perlick said that the company intends to warehouse substantial amounts of its direct draw dispensers and bottle coolers in California.

Kennedy Becomes National Strata Aire Distributor

DETROIT—The Kennedy Corp. here has entered into an arrangement with Strata Aire, Inc. of Rittman, Ohio, whereby Kennedy Corp. becomes the national distributor for products manufactured by Strata Aire.

The Kennedy Corp. is the national distributor for a number of lines of refrigeration products, and is headed by Charles R. Kennedy, Jr.

Strata Aire at its plant in Rittman, Ohio, produces a front-opening type of milk cooler in 4, 6, 8, and 10-can sizes.

Design of the milk cooler is such that constantly circulating cold water bath is directed to the top of the milk cans to a reservoir at the bottom of the cabinet. A pump takes the water from the reservoir to an evaporator storage tank where it is refrigerated and then flows through supply tubes to the top of the can.

Control is by a manually set time switch which keeps the cold water cycle in operation for as long a time as is deemed necessary to cool the milk. Condensing unit is mounted on top of the cabinet.

Grocers Study Proper Method Of Cutting, Wrapping Beef

DETROIT—How to cut and pre-package a side of beef was recently demonstrated to local grocers and butchers by J. W. Witte, sales manager of the Biro Mfg. Co. of Marblehead, Ohio.

Witte conducted his demonstration at a food equipment show for food retailers sponsored by the Associated Food Merchants of Greater Detroit. On display were several brands of self-service, open display, refrigerated meat and dairy cases.

Witte cut the meat while an experienced pre-packaging girl from a local supermarket packaged the cuts and showed how to display them properly.

Temprite Regional Mgr. Moves

PHILADELPHIA — James W. Archibald, eastern seaboard regional manager for Temprite Products Corp., is now located in Philadelphia, with headquarters at 115 W. Carpenter Lane.

Archibald formerly made his headquarters in Ocean City, N. J. His Philadelphia phone number is Victor 8-2660.

Distributors Air Mutual Problems at First Meeting of York Corp. Field Committee

YORK, Pa.—The first meeting of the National Distributor Sales Advisory Committee of York Corp. took place in April in York under the chairmanship of John R. Hertzler, vice president and general sales manager, with the entire committee in attendance.

The purpose of the committee meetings is to give key distributors, elected by the distributors themselves, the opportunity to present to York Corp. management for immediate discussion, plans for improving York products and services, distributor business, personnel problems, advertising, sales, sales promotion, accounting, engineering, servicing, methods and procedures, in fact, to discuss all phases of the distributors' business and their relations with York Corp. on the one hand and their customers on the other.

Representing distributors at this first meeting are P. H. Erisman, Washington, D. C.; H. C. Benington, Toledo; M. L. Brown, Dallas; and R. W. Noll, Los Angeles. District offices of York Corp. are represented by District Managers M. M. Crout, of Atlanta and J. J. Floreth, Chicago; and by district commercial sales managers F. B. Reynolds, New York, and H. A. Ware, St. Louis.

In addition to chairman Hertzler, the York factory is represented by W. E. Landmesser, manager of resale sales; D. C. Seitz, manager of distributor sales; and John S. Garceau, director of advertising and sales promotion.

Factory members of the committee serve permanently, but the representatives from the field, one from each of the eight York sales districts, are elected for a period of one year on a rotating basis, the group always

being comprised of four distributor representatives, two district managers, and two district commercial sales managers, the latter being directly responsible for distributor operations.

Those men attending the meeting by election represent the nationwide York distributing organization. They are enthusiastic about the results thus far since they are enabled to see their mutual problems from a broad viewpoint and develop solutions that are nationally applicable.

JEWETT FREEZER SENTRY

**A PROFITABLE
"Push Over" SALE**

**ON EVERY
FREEZER
SERVICE CALL**

Every home freezer owner needs this warning device of mechanical failures. You know the Sentry.

Self-contained...installed in two minutes...positive action...no thermostat...battery operated with 5 year battery life...100 hour buzzer operation...extra profit margin...write for complete story.

JEWETT ASSOCIATES
1053 MAIN STREET BUFFALO 8, N. Y.

Will it Sell?

That is the all important question to ask about the Refrigerated Display Equipment you handle.

You can answer that question by asking 8 more... they are:

- 1 Is it well made, and properly engineered?
- 2 Is it designed for efficient modern merchandising?
- 3 Is it backed by good, adequate advertising?
- 4 Is the producing company substantial financially and capable of producing?
- 5 What selling aids does the company offer?
- 6 Is it competitively priced?
- 7 Who are the people at the head of the company... reputable? experienced? friendly?
- 8 Do I have to supplement the line or will the one company furnish most types of equipment and parts?

Ask these questions of any equipment before you handle it. Ask them of your present equipment. If there is a weakness in the answers, then there is a weakness in the ultimate answer to the main question... WILL IT SELL?

We would like to have you ask these questions about Super-Cold equipment. We would like the opportunity of answering them completely and truthfully. Will you let us? Just mail the coupon below, and we'll give you full information. There is no obligation, of course.

NOTE: Inquiries from out of U.S.A. should be addressed to: International Division, or use Cable Address, "Supercold."

The Super-Cold Corporation
1020 E. 59th St., Los Angeles 54, Calif.

Gentlemen:

Please furnish me with details on your new Super-Cold franchise.

Name _____

Address _____

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GUARDIAN OF
Flavor
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SUPER-COLD
Refrigeration

COMPLETE FOOD STORE REFRIGERATION UNDER ONE GREAT NAME

LA CROSSE—THE STANDARD OF COMPARISON

FOR

- APPEARANCE
- CAPACITY
- EFFICIENCY
- ECONOMY
- DESIGN



LA CROSSE ICE CUBE MAKER WITH UTILITY HOUSING

By comparison, alone, La Crosse leads the field with their Ice Cube Maker. The final test—PERFORMANCE—puts La Crosse at the head of the list for economy and efficiency in long lasting operation. LARGE PRODUCTION CAPACITY... 21 quick release trays—16 cubes each. GREATER STORAGE CAPACITY... 1025 cubes plus 336 cubes in trays. UTILITY HOUSING UNIT... designed to utilize "lost space" over the compressor—for mixing station, glass storage, sandwich counter, etc.



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Expert Representatives: Melvin Pine & Co.
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"ONLY NORGE OFFERS ALL 3!"



NORGE

double-capacity AUTOMATIC

THE KING OF THE AUTOMATIC WASHERS!

Now you can stock the only washer line with *all three*—double-capacity Automatic, a de luxe wringer washer with Automatic Timer and the Standard Model. When you carry Norge, you have a washer for every home—with quality in every price class. You'll smash all sales records with the tremendous pulling power of this gigantic line.

Norge is the only automatic washer with sufficient capacity to meet the needs of the average family. You can actually do a family's weekly laundry in *two* loads. Yet, big as it is in washing capacity, the Norge occupies no more floor space than a regular capacity automatic washer.

EXCLUSIVE!

Washes twice as much in one load... over 18-pound capacity!

EXCLUSIVE!

Greater flexibility... 3 water levels—high, medium, low!

EXCLUSIVE!

5-way washing action... gets clothes clean, really clean!

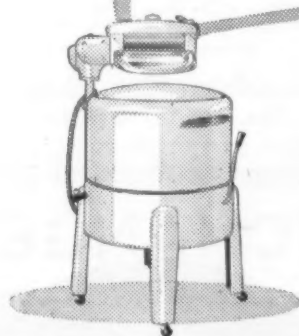
EXCLUSIVE!

Economical operation... uses less water, uses less soap!

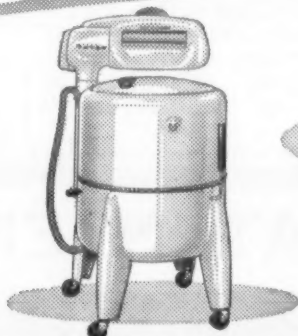
NORGE

STANDARD WRINGER WASHER

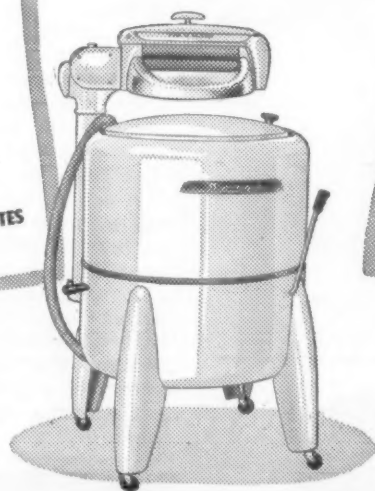
WASHES A FULL LOAD OF CLOTHES CLEAN IN 7 MINUTES



MODEL CW-918-P—Full of economy features. 8-pound wash capacity; 18 gallons to water line. Available without pump as model CW-918.



MODEL CW-920-P—Top quality washer. 9-pound wash capacity; 20 gallons to water line. Available without pump as Model CW-920.



MODEL CW-919-P—Many money-saving features. 8½ pound wash capacity; 19 gallons to water line. Available without pump as Model CW-919.

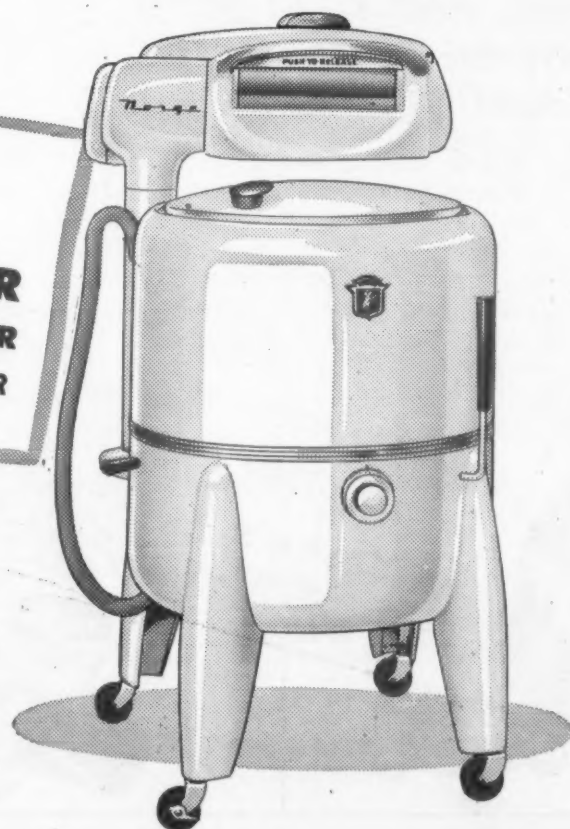
MODEL CW-919-G—Sturdy, dependable model features a gasoline engine. 8½ pound wash capacity; 19 gallons to water line.

NORGE

AUTOMATIC TIMER DE LUXE WRINGER WASHER

THE WASHER MANY WOMEN PREFER

MODEL DW-920-P: De luxe wringer washer with Automatic Timer—"Queen" of the Norge line... de luxe features and fittings throughout. Automatic timer stops washer when desired washing period is up. 9-pound wash capacity; 20 gallons to water line. Available without pump as model DW-920.



REFRIGERATORS • ELECTRIC RANGES • WATER COOLERS • WASHERS • ELECTRIC WATER HEATERS • HOME HEATERS • GAS RANGES • HOME FREEZERS

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ADDISON INDUSTRIES, LTD., TORONTO, ONTARIO

SEE
NORGE
BEFORE YOU BUY

West Coast RSES Meetings Begin May 6--

(Concluded from Page 1, Column 3) fashion shows, teas, and tours, has also been arranged.

Only speaker on the program not from California will be John Spence, of Hussmann Refrigeration, Inc., and educational chairman of the national society. He will give a short talk Saturday on "How Being a Certificate Member of the RSES May Affect Your Future" and an address Sunday on "Open Display Cases and Your Future."

SATURDAY PROGRAM

Saturday morning, those attending the convention will hear Martin E. Frazier of the Security Trust & Savings Bank of San Diego speak on "A Banker Looks at Your Future in Refrigeration," Charles Walling of Los Angeles talk on "Your Future in Refrigeration May Be Insured by Cooperative Organization," and L. K. Willis of Long Beach tell how "Your Future Will Be Determined by Your Customer Relations."

Saturday afternoon, Harold Halls of Los Angeles will discuss "Drying Agents—Their Properties and Functions" and Bill Holliday, also of Los Angeles will cover "Low-Temperature Refrigeration—Why and How It May Affect Your Future."

In addition, the afternoon program calls for a demonstration of a mobile telephone unit by the Associated Telephone Co. and a Kelvinator presentation on "Servicing Hermetics—A Future Problem."

On Sunday morning, in addition to Spence's talk, Dan Wile of Refrigeration

Engineering, Inc. of Los Angeles will discuss "Air Conditioning and Your Future," and M. R. Hanks of San Diego, international treasurer of the RSES, will explain "How Membership in the RSES May Affect Your Future."

Lloyd Thomas, president of the California association, will supervise the nomination and election of officers for the 1949-50 fiscal year. Two delegates from each of the 17 chapters in the association will participate.

Other retiring officers of the association are Ralph French, first vice president; A. M. MacLennan of Sacramento, second vice president; Charles G. Bell of Fresno, secretary; Stewart Bell of Long Beach, treasurer; Clarence Stumpf of San Gabriel, assistant secretary; Hal Crumly of Pomona, educational director; and Sam Grove of Bakersfield, sergeant-at-arms.

BOARD OF DIRECTORS

The board of directors consists of Charles Edwards of San Bernardino, Robert Chambers of Compton, Austin Hicks of Orange County, Charles Rush of San Fernando, Dave Fagg of Oakland, W. W. Allison and Harold McQuay of Los Angeles.

The San Diego chapter committees are: entertainment and reception, Merle Wampler, Cecil Farrell, and Otto Williamson; educational, M. R. Hanks and Chapter President Kenneth Young; publicity, William Fickler; information and registration, Russell Romick; housing, Al Hoin; and yearbook roster, M. R. Hanks.

21½-Cent Copper Seen As Brass Prices Drop

NEW YORK CITY—A prediction that the price of copper in general would soon be reduced to 21½ cents a pound was recorded here after four of the big five brass companies lowered the price of all their products to levels based on 21½-cent copper.

Brass mill prices were reduced by Chase Brass & Copper Co., Revere Copper & Brass, Bridgeport Brass Co., and Scovill Mfg. Co. Chase is a wholly-owned subsidiary of Kennecott Copper Corp., which is said to be the nation's largest producer of the metal.

Big copper mine producers are now offering their metal at 23½ cents a pound. Customs smelters, however, have been quoting copper at 21½ cents since April 14.

The brass mills reportedly account for about 40% of all copper used in this country.

Hussmann Quarterly Orders Up over Same '48 Period

BOSTON—W. B. McMillan, president of Hussmann Refrigerator Co., told the Boston Security Analysts Society that his company booked more new business in the first quarter of 1949 than in the comparable 1948 period and increased its backlog of unfilled orders.

He said first quarter profits declined about 20% from the like period a year ago and shipments were below those for the first 1948 quarter. Sales a year ago totaled \$3,490,790 and earnings \$324,226.

Dr. Carrier Honored by Newcomen Society as 'Father of Air Conditioning'

SYRACUSE, N. Y.—Dr. Willis H. Carrier, chairman emeritus of Carrier Corp., was honored here recently as "The Father of Air Conditioning" at a testimonial dinner sponsored by the North American Branch of the Newcomen Society of England, and attended by leaders of industry, commerce, finance, and science from many sections of the United States and Canada.

Newcomen is an honorary society which centers its work in the history of material civilization, honoring those who have contributed or are contributing to the progress of mankind. It is named after Thomas Newcomen of England, who pioneered in the steam engine field in the eighteenth century.

Dr. Carrier is credited with developing the first scientific air conditioning system in 1902 in order to solve a humidity problem in a Brooklyn lithographing plant.

Cloud Wampler, president of Carrier Corp., as principal speaker, declared:

"This evening, we of Newcomen are gathered together to honor, in his own lifetime, the creator of a great idea. But we also pay tribute to his use of that idea. For all too often the man who has the great idea either cannot or does not translate it in terms of production and employment and service."

Referring specifically to synthetic textiles, penicillin, and food preservatives as examples of the many services of air conditioning to mankind in industry, Wampler said:

"From the work of Dr. Carrier has come a production tool now used in more than 200 different industries to turn out goods faster and cheaper and better. Actually, it is close control of temperature and humidity that has made possible much of the mass production that is a symbol of our time."

PRODUCER OF PROFIT

Discussing air conditioning as related to the general public, Carrier's president declared:

"Let us now turn to the field where air conditioning is best known, that which involves the comfort, health, and efficiency of people by tens of millions. The range extends from small offices to entire skyscrapers, from tiny shops to huge department stores, from the bedrooms and living rooms of private homes to those of great hotels. Then there are railroad trains, busses, theaters, restaurants, ships, and hospitals. Actually, the list is almost limitless. And perhaps the same is true of the benefits of this unseen service."

Obviously, these cannot be measured accurately. However, this much is clear—comfort air conditioning is a producer of profit. It draws trade. And the time has arrived when anyone who seeks his share of available patronage, in competition with others, simply must give consideration to providing comfortable and healthful surroundings for both prospective customers and employees."

Among the guests at the dinner, presided over by Dr. Charles Penrose, senior vice president of the North American Branch of Newcomen Society, were four of the five living members of the founders of Carrier Corp. Besides Dr. Carrier they are L. Logan Lewis and A. E. Stacey of Carrier Corp., and Edmund P. Heckel of E. P. Heckel and Associates of Chicago. The fifth, E. T. Murphy, senior vice president of Carrier, was in California at the time of the dinner.

Base Pay Ruling--

(Concluded from Page 1, Column 2)

"You fear that if the earnings from the sales are to be included in the regular rate and the time spent in the activity included in the determination of the hours worked, the overtime compensation would be prohibitive."

"You also state that you have taken the matter up with Mr. Williamson of our Detroit office, but that he was not able to advise you that the time spent and the commissions earned could be excluded."

"I regret that I see no alternative in including the time and the earnings in the determination of overtime compensation under the Fair Labor Standards Act."

"While, as you know, Regulation 541.5 provides an exemption for outside salesmen as defined in the Regulation, the exemption would not be available if the non-exempt work exceeds 20%, which I assume would be the case here since the employees are presumably employed full time in the service work."

"The fact that the employees do the selling 'after hours and on their own time' would seem to make no difference since it is clear that they are actually employed during both types of activity."

"Likewise, the fact that the commissions may be substantial would not change the general principles although I recognize that it may present a serious practical problem."

Remington Prices--

(Concluded from Page 1, Column 4)

cooled models, 10W (the Fullton) and 12W (the Aristocrat), which list at \$775 and \$875, respectively.

The prices shown apply to the units when supplied with wood cabinets of mahogany. Blonde cabinets of Avodire wood are available optionally, at a small extra charge, while console models 10 and 12 can also be supplied in non-decorative steel cabinets at prices considerably below those listed.

"These appreciable price reductions are not only consistent with the 'un-inflationary' spirit of the times, but will make the benefits of air conditioning available to an increasing number of people," Laube stated.

"They are made possible because of the recent increased productivity of labor, some reduction in cost of materials, and the fact that domestic orders for Remington Air Conditioners, during the first quarter of 1949, have been running well over double for the same period of 1948."

Vacuum Cleaner Sales for March Increase 28% over February

CLEVELAND—Factory sales of standard size household vacuum cleaners in March rose 28.4% over the February level but were 12.7% below those for March a year ago, it was reported by C. G. Frantz, secretary-treasurer of the Vacuum Cleaner Manufacturers Association.

DOORS FOR WALK-IN ONLY REFRIGERATORS \$46.00 per set

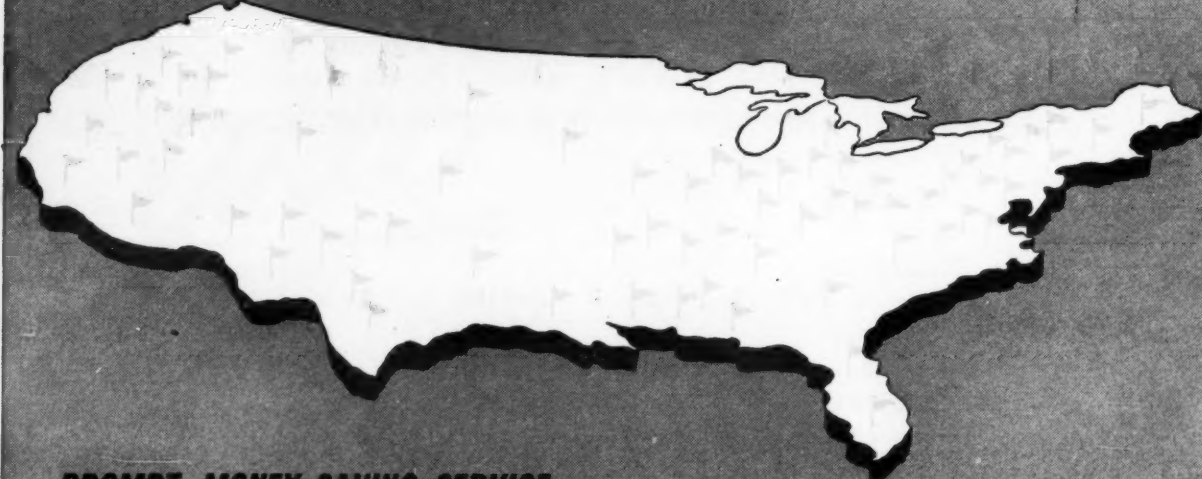
(Product of Jamison Manufacturing Co.)

One Outside Door 33½" x 73½" and 8" thick. A typical Jamison door frame is included with each door. Two Batten Ventilation Doors with Galvannealed Metal on both sides with glass windows measuring 6½" x 8½". Overall dimensions of these Ventilation doors are 14½" x 72" and they are 1" thick. Complete with Hardware and equipped with 6" York Roller Seal.

Write Edw. F. Donnelly

Consolidated Conditioning Corp.
26 West 47th St. New York 19, N. Y.

See Your **KEROTEST** Wholesaler



PROMPT, MONEY-SAVING SERVICE EVERYWHERE ON TOP-QUALITY REFRIGERATION VALVES AND FITTINGS

Just pick up your telephone... there's a Kerotest Wholesaler ready to serve your day-to-day needs with the finest in Kerotest Refrigeration Valves and Fittings and a host of other service essentials. Look to him always to maintain a complete stock... to keep you "up"

on the latest technical developments and to assist you with experienced "know-how." For every need... see your Kerotest Wholesaler.

KEROTEST MANUFACTURING COMPANY
Pittsburgh 22, Pa.



HEAT INTERCHANGER



KRAMER TRENTON CO. Trenton 5, N. J.



**HAVE YOU
TRIED
THEM?**



McINTIRE DC FILTER-DRIERS

means **Double Capacity**

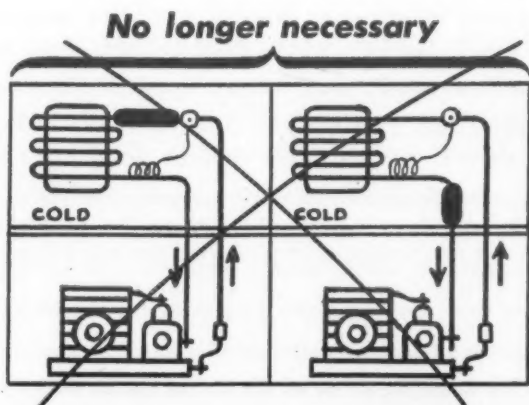
DOUBLE CAPACITY - RESERVE CAPACITY

Saves callbacks . . . Saves cost

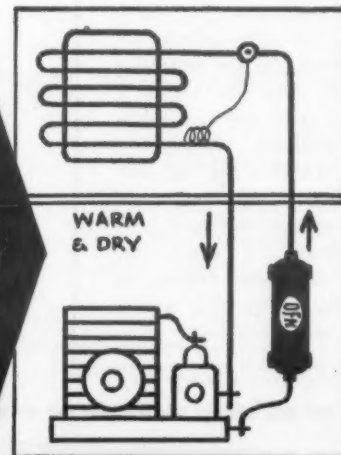
LIQUID LINE INSTALLATION

*Regardless of line
temperature to 150° F.*

*No need to install
in cold place.*



**The
DC Way**
Warm, Dry
Convenient



FIRST PASS DRYING to -60° dew point. . . *No repeated warming of valves or cycling necessary.*

PROGRESSIVE FILTERING. *Clean system - Free Flow.*

Buy them from your wholesaler.

MADE by the
MAKERS of



MOISTURE INDICATORS and
MOISTURE CONTROL UNITS

McINTIRE CONNECTOR COMPANY

265 Jefferson St., Newark 5, N. J.

Engineers Tell How To Convert Milk Cooler To a Heat Pump for Warming Milk House

MINNEAPOLIS — Converting a milk cooler to a heat pump by placing a solenoid valve on the incoming water line and connecting a room thermostat to the valve will give maximum economy and efficiency in maintaining a 40° F. temperature in the milk house, according to two Northern States Power Co. agricultural engineers.

Good milk houses, well insulated with infiltration reduced to a minimum can be heated by $\frac{1}{4}$ of a kwh. per degree day when the milk house is 1,000 to 1,500 cu. ft. Heating is direct radiation from fan type electric heaters, Marvin Nabben and Charles Wagner declared.

The engineers asserted 40° F. satisfies the protection requirement and that common use of 50° F. unnecessarily increases the cost of heating at the higher temperature.

The amount of water flowing into

the milk cooler must be regulated so that the amount of heat to be removed will not exceed the capacity of the refrigerating unit so as to protect the milk already in the cooler, Nabben and Wagner declared.

When the room thermostat starts the flow of water the ice bank will melt, starting the compressor. In order to get best control, keep feed water away from the vicinity of the refrigerator thermostat, they further advised.

Water pumping costs may be 20 or 30 cents per month depending on depth of well and electric rate. Cost of the solenoid valve will be about \$10 and thermostat another \$12.50, they estimated.

Recommending heating to 40° F. for economy purposes, they proposed the use of infrared heating for personal comfort without raising room temperature.

York Distributor Writes Own Sales Manual Giving 14 Proven Sales Closing Methods

CHICAGO—To aid their air conditioning and commercial refrigeration dealerships in hiring, training, and maintaining a crew of specialty salesmen, which this firm believes is essential for sales today, Westerlin & Campbell Co., distributor for York Corp., recently prepared its own sales manual to give dealers.

Covering such problems as recruiting the men, training them, and suggested compensation methods, the attractively bound mimeographed booklet was written and gotten out in a hurry. Less than a month elapsed between the time three Westerlin & Campbell men from Chicago headquarters were "locked in a hotel room" to write it until copies of the completed manual were being distributed to dealers, it is reported.

Stressing the importance of a proper compensation plan for salesmen,

Westerlin & Campbell emphasizes these "main points of importance in an ideal compensation plan:

"1. The salesman should be rewarded for every type of task he is called upon to perform; alternately, it should not pay the man for work he does not do.

"2. The plan must offer both security and incentive.

"3. It must provide for the new salesman who has not yet reached his full selling capacity and is still under some form of training.

"4. It should be simple in execution and allow the salesman to quickly estimate his financial position with the company at any time. It is important to any good salesman that his record of total earnings be readily available each month in the form of a monthly statement."

To guide both dealers and sales-

men, the company also listed the following duties of a specialty salesman:

- "1. To sell at a profit.
- "2. To obtain new accounts.
- "3. To increase repeat business.
- "4. To cover all prospects.
- "5. To sell selected items.
- "6. To sell good credit risks—not to make collections.
- "7. To create new markets.
- "8. To participate in sales training programs.
- "9. To prepare required activity reports.
- "10. To serve the mutual interest of the customer and employer."

And one of the final items in the booklet was a list of "14 Proven Sales Closing Methods" adapted from Hegarty's "Building a Sales Training Plan." The methods are listed as follows:

"1. *Installation Choice*—The prospect is asked if a suggested equipment location will be satisfactory, or if delivery the following Tuesday will meet with his approval.

"2. *Selection Choice*—A prospect is asked to decide whether he wishes to purchase the Yorkaire conditioner with or without the extra Buttress Ducts, or does he wish to buy an ice crusher along with the Automatic Ice Cube Maker? In other words, a selection of accessory equipment is asked for.

"3. *Proposal Close*—The salesman presents a typed proposal, or order form, for the prospect's 'Inspection and Approval'.

"4. *Choice of Payment Close*—The prospect is asked if he wishes to pay cash, or if extended payments are preferred.

"5. *Name Detail Close*—With an order blank in hand the prospect is asked for a correct spelling or an initial and the salesman proceeds to fill out the order or contract.

"6. *Scarcity Close*—It is pointed out that production is still unable to keep up with demand and the prospect is asked if delivery in 10 days will be satisfactory.

"7. *An Only Objection Close*—It is very helpful if a prospect can be pinned down to a single objection; then devote every effort to overcoming this last obstacle to the order.

"8. *Matter of Pride Close*—A prospect is advised that his home or place of business would benefit more than any other place in the salesman's district, and the salesman is sure he wishes to buy this equipment because of his 'Progressive Reputation'. Or, the opposite pride approach of keeping up with his competitor who has recently purchased York equipment.

"9. *Sales Contest Close*—The prospect is informed that the salesman is anxious to achieve top position in a sales contest just as the prospect is striving for leadership in his own community. The salesman is 'convinced' the prospect plans 'to make the purchase soon so why not sign the order now'.

"10. *Legal Close*—Just as a lawyer closes his case, convinced he is winning, the salesman rapidly sums up the advantages in a logical manner then asks for the order.

"11. *Lost Profit Close*—When selling items that result in big savings or increased profits, it is important that the salesman stress the urgency of signing the order at once. If the prospect won't sign the order at the conclusion of the sales presentation, the salesman should ask for an appointment the evening of the same day or no later than the next day. A prospect will admit he would like to see the extra dollar savings or profit realized today.

"12. *Refusal Close*—Very early in a sales presentation, the salesman sometimes gives the prospect the opportunity of saying 'no' in order to learn his objections. This makes it possible to center the balance of the sales presentation around these objections.

"13. *Concession Close*—As a last resort, a salesman may offer a small premium in the form of advertising, or a small price reduction because of a possible saving in the installation detail.

"14. *Direct Closing Method*—Ask for the order! Then, keep on asking for it."

BIG BROADWAY SUPER-MARKET FINDS THAT *Lehigh* BLU-COLD AIR-WATER COMBINATION UNITS GIVE PERFECT LOWER COST REFRIGERATION



ZABAR'S Super Food Market, New York, N.Y. *Lehigh* BLU-COLD "Air-Water" units sold & installed by E. Wurthman Refrigeration Service Co., 2885 Sedgewick Ave., New York City, and furnished by Sam Schwartz, *Lehigh* BLU-COLD wholesaler, Bronx, N.Y.



Lehigh Engineering Brings New Approach To Many Refrigeration Problems

MANY ADVANTAGES IN "AIR-WATER" UNIT

Lehigh BLU-COLD Combination Air and Water Cooled Condensing Units employ the water cooled feature automatically during peak-load periods or for above normal ambients. The unit operates on AIR COOLING alone with the same displacement, capacity, and efficiency as a water cooled unit with ambients below 70°. Above 70° ambients, this unit employs the use of WATER along with AIR COOLING to overcome over-load conditions encountered with air cooling at high ambients. The setting of the valve can be adjusted to use the water feature as much, or as little, as the user wants, based on water cost conditions.

SENSITIVE CONTROLS NOW AUTOMATICALLY "SELECT" MOST EFFICIENT AND ECONOMICAL HEAT TRANSFER MEDIUM.

The famed "*Lehigh* Team" is proud of the field record now being made by several hundred BLU-COLD Combination Air-Water Unit Installations. Carefully tabulated experiences shows greater economy over the whole range of demand from "idling" to peak load. *Lehigh* BLU-COLD wholesalers now have complete data sheets on the capacities, watt, and water consumption of these really outstanding units. We suggest that you secure this valuable information from your wholesaler, or from us direct, before you decide on your next compressor job.

Have You Seen Our March 1st Price List? New Low Prices On All Units Including:

•PACKAGED AIR COOLED 1/4, 1/3, 1/2 H.P.; •HEAVY DUTY AIR COOLED 1/3, 1/2, 3/4, 1, 1-1/2, 2 H.P.; •STANDARD DUTY AIR COOLED 1/3, 1/2 H.P.; •HEAVY DUTY WATER COOLED 1/2, 3/4, 1, 1-1/2, 2, 3, 5 H.P.; •COMBINATION WATER COOLED 1/2 through 2 H.P.

For High, Medium, Low Temperature, Freon 12 or Methyl Chloride. Units for special applications in all capacities. Write for condensed catalog.

New *Lehigh* BLU-COLD TRUCK UNITS

Based on a three year field survey of what the refrigerated truck industry wants and DEMANDS for heavy duty, trouble-free use.

Flexible Construction features permit adaptation to any size or shape of truck body including remote applications. $\frac{1}{4}$ H.P. thru 2 H.P. Units available. Ask for special data sheets and price list.



$\frac{1}{4}$ H.P. UNIT ILLUSTRATED • LARGER CAPACITIES WITHIN 60 DAYS

Export Department: 39 Broadway, New York 6, N. Y.

Lehigh Manufacturing Co. PLANT LANCASTER, PENNA.

Factory Prices Cut 5% On Triple-Thermopane For Refrigerated Cases

TOLEDO—A reduction of 5% in factory price on quantity orders of triple-Thermopane, insulated glass for refrigerated retail display cases, was announced recently by G. P. MacNichol, Jr., vice president in charge of sales of Libby-Owens-Ford Glass Co.

"We have been able to extend improved manufacturing techniques, which recently enabled us to reduce the prices for standard sizes of Thermopane for double-hung windows, to the production of triple-Thermopane," said MacNichol. "We wish to pass this saving on to consumers."

The reduction in price applies to volume orders, but odd sizes in less than ten unit orders carry a slightly higher price. Several large manufacturers of refrigerated display cases use the triple-Thermopane as standard equipment.

Triple-Thermopane is a clear vision, trouble free glazing unit which permits maintenance of freezing temperature inside the display case with normal room temperature and humidity conditions outside. Double and quadruple Thermopane units also are made for special uses.

Frozen Orange Juice Canners May Ask USDA To Set Quality Standards

WASHINGTON, D. C.—Fearful that newcomers in the field may try to market an inferior competing product, producers of canned frozen orange juice are contemplating asking the Secretary of Agriculture to establish minimum quality standards, it was reported here.

An industry representative said Secretary Charles F. Brannan could take such action because the method of producing canned frozen orange juice was developed at one of the department's experiment stations in Florida and the government holds the patents on the process.

This process involves concentrating orange juice to about one sixth of its normal volume. Since some of its original flavor is lost in the process, the concentrate is mixed with an equal volume of fresh juice to restore its full flavor.

The same process has been applied successfully to grape juice, grapefruit juice, and orange-grapefruit juice.

Members of the industry feel that establishment of government standards would prevent the popular new product from suffering the same kind of temporary setback experienced by the frozen food industry about two years ago.

At that time, they said, housewives couldn't get enough frozen foods at first, but then began to pass them up when some "marginal" producers put less tasty products on the market.

Grocery Store Modernization, Display, Selling on Food Wholesalers' Agenda

ST. LOUIS—Problems of store modernization, display, and merchandising in the retail grocery field and the part the wholesaler must play in them will be one of the highlights of the annual convention and concurrent Food Distribution Show of the U. S. Wholesale Grocers Association at the Municipal Auditorium, here May 30-June 1, inclusive, it is announced by Harold O. Smith, Jr., executive vice president.

The exposition, the first of its kind in the field, will be held simultaneously with the convention. Economies in distribution will be featured. Exhibits will include machines for inventory control, accounting, warehousing, billing, packaging, store modernization, fixtures, materials handling equipment, trucks, and products related to food distribution and retailing.

All food wholesalers, whether or not members of the association, as

well as officials of manufacturers, suppliers, brokers, chain stores, and supermarkets, have been invited. The second night of the exposition, May 31, has been set aside for attendance by retailers in the St. Louis area.

The three morning sessions will be devoted to business meetings while the afternoons will be given over to viewing exhibits. The program:

Monday, May 30—"Engineering for Economy," with a panel discussion on "Low Cost Wholesaling."

Tuesday, May 31—"Merchandising for Profit," with a forum discussion on "Effective Merchandising."

Wednesday, June 1—"Teamwork in Distribution," with a symposium on "Working for Mrs. Consumer."

Hotel reservations for the meeting may be arranged through the association's Washington, D. C., office, or by writing Hotel Reservations Bureau, U.S.W.G.A., 1420 Syndicate Trust building, St. Louis 1.

Allis Reduces Prices Of Multiple V-Belt Drives

MILWAUKEE—A price reduction of from 7 to 19% on the multiple V-belt drive has been announced by Allis-Chalmers Mfg. Co. here. Reductions apply to all types of the company's multiple V-belts, sheaves, and accessories sold under the trade name, "Texrope."

Allis-Chalmers reported the lower prices were made possible through lower basic material costs and recent changes in manufacturing facilities resulting in increased production efficiency.

Marcus Transformer Co. Names New England Rep.

HILLSIDE, N. J.—Alvin Marcus, president of the Marcus Transformer Co., Inc. here, has announced the appointment of the Electrical Apparatus Co., 1200 Soldiers Field Rd., Boston, as company territorial representative for New England.

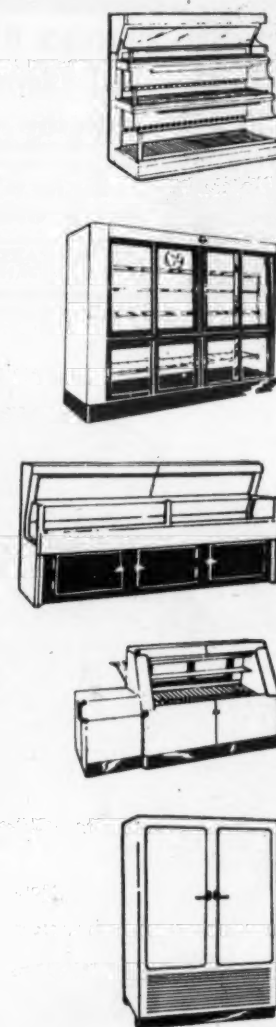
Candid Camera Reveals How Consumers Shop at Self-Serve Meat Cases

CHICAGO—A candid camera film showing how consumers shop from self-service meat cases was made recently by the merchandising service department of Swift & Co. and is now available for showing to dealer group meetings, the company has announced.

A hidden camera was used in making the film. Store customers had no knowledge their picture was being taken and shoppers were photographed as they selected meats from self-serve cases.

The need for carefully packaging self-serve meats is clearly demonstrated by pictures showing women pinching, poking, comparing, and sorting the displayed product as they make their purchase.

Also shown is the need for store personnel to tidy up and replenish cases at frequent intervals during store hours.



Model
6710
Wide
Shelf
Display
Case

Made extra-wide purposely; so that shoppers are sure to see it. Made extra large purposely; to give room for colossal displays. Made extra roomy purposely; to give space for silent salesmanship.

The merchant who wants to sell more perishables per square foot of floor space and more per foot of wall space needs this extra-wide KOCH fixture.

Thorough refrigeration. Plenty of cold for both display and storage sections.

Designed for continuous arrangement. Any number of cases can be placed end-to-end. Simply remove the glass ends, and install an extra shelf section over the junctions.

This new case is typical of the quickly-enlarging KOCH line ... the line of least resistance. It is easy to sell ... easy to make more and bigger profits!

close more sales with this
WIDE open case . . .

KOCH Refrigerators

NORTH KANSAS CITY 16, MO.

SINCE 1883

Send Today for Details and Open Territories

KOCH Refrigerators
North Kansas City 16, Mo.
Gentlemen:

Please send full information on the KOCH line of refrigerators.

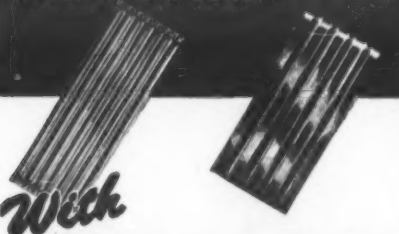
Name _____ Title _____

Address _____

Firm Name _____

City _____ Zone _____ State _____

Cut your
PRODUCTION COSTS



WICK
GREENE MOULDING ASSEMBLIES

If you are using plated castings or one-piece stampings for grille work, louvers, decorative trim, etc., Greene Moulding Assemblies can mean real savings for you. With them you get

- Lower cost per unit
- Equal or greater strength
- Reduced weight
- Economical repair or replacement
- High quality appearance

CLIP AND MAIL TODAY

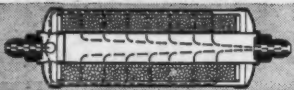
Greene Manufacturing Co., Inc.
1028 Douglas Ave., RACINE, WISCONSIN
☐ Please supply me with complete information on savings possible with Greene Moulding Assemblies
☐ I am attaching blue prints and specifications for quotes

NAME _____

TITLE _____

COMPANY _____

CITY _____ STATE _____

**POSITIVELY
WILL NOT CLOG****"Cross-Flo" DRIER-FILTERS**

Eliminate pressure-drop troubles with Cross-Flo Drier Filters' exclusive new principle of flowing the refrigerant uniformly and slowly across a thin, cylindrical drying-agent bed instead of forcing it thru a long powder-clogged bed. Capacities: Liquid Line—1/4 to 7/8 HP; Low-side—1/4 to 1 1/2 tons (Freon 12); Suction Line—1/4 to 1/2" OD.

REMCO INCORPORATED
ZELLENFELD, PA.

Over 1,500,000

In Use

**Investigate the NEW
MASTER
Food Conservator**

Sold thru refrigeration and insulation distributors. Write for particulars.

Master Manufacturing Corp.
121 Main St. Sioux City 4, Iowa

MARSH

**Pressure Gauges
Dial Thermometers**

★The gauge with the
Recalibrator

Ask for this New
Refrigeration Booklet

JAS. P. MARSH CORP.
DEPT. D., SKOKIE, ILLINOIS

**Neb. Solons Pass Curb on
Below Cost Advertising**

LINCOLN, Neb.—The Nebraska legislature has passed LB 395 which makes it unlawful to advertise an item at less than cost or replacement cost, if the advertiser has failed to indicate the quantity of the item or that it is being discontinued.

The bill, known as the "deceptive and misleading advertising bill," was introduced by Senators Charles F. Tyrdik and Cliff N. Ogden of Omaha, and it includes as advertising all window signs, posters, mailing pieces, and circulars as well as newspaper copy.

**Schaefer Issues Two New
Publications on Products**

MINNEAPOLIS—The 1949 catalog of Schaefer ice cream cabinets and a booklet describing Schaefer frozen food cabinets have recently been announced by Schaefer, Inc. here.

Each of these publications illustrates the company's full line and each illustrates and describes the new model O-6 open-type merchandising cabinet for ice cream and frozen foods. They also cover the firm's restyled line of superstructures.

**Ideal Cooler Names Weiss
As General Factory Rep.**

ST. LOUIS—Ideal Cooler Corp. here has announced the appointment of Michael Weiss as general factory representative. He was formerly with Sperry Products of Danbury, Conn.

**Capacitron Sterilizes
By Shooting Electron Rays
Into Food To Kill Germs**

SAN FRANCISCO—An electronic device that will shoot rays of electrons into foods and sterilize them by stopping the biological activity of germs was described recently before the American Chemical Society in convention here.

Best use for the machine, it was said, would be for sterilizing frozen foods.

The machine, called a capacitron, is being developed by the Electronized Chemicals Corp. of New York City. The report on it was made by Dr. Arno Brasch and Dr. Wolfgang Huber of that firm and Dr. Kurt G. Stern of the Polytechnic Institute of Brooklyn.

According to the report, the electronic rays, which penetrate the food for only 1/1,000th of a second, attack and destroy a chemical called desoxyri-bonucleic acid. This acid is believed to be a key constituent of genes—the part of a cell that controls heredity and reproduction.

Viruses were said to be composed almost entirely of chemicals closely related to this acid.

The electronic penetration is so swift, the scientists said, that it does not affect odor, taste, or appearance.

Fire Guts Appliance Store

FORT WORTH, Tex.—C. V. Lancaster Refrigerator Co. here, was gutted by a fire which did damage estimated at \$250,000 to several business places March 28, 1949.

The Freezer Paves the Way



Al Gerber, sales manager, and Fred Peirce, Jr., president of the Community Frosted Food Co., Philadelphia distributor, shown with Jordon Model M16 frozen food merchandiser installed in their showroom.

**Frozen Food Distributor Sells Cabinets
At Cost To Establish New Grocer Accounts**

PHILADELPHIA — Community Frosted Food Co., a local frozen food distributor, says it has licked the problem of opening new accounts by making frozen food cabinets available to the retail grocer "at our own cost from the manufacturer."

The firm arranges the financing of equipment over a two-year period or for the time required by the grocer to repay the investment out of his frozen food sales profits, according to Al Gerber, secretary and general sales manager.

Gerber said the company is handling Jordon Refrigerator Co.'s Model M16 cabinet.

"The all-important point in our program," he explained, "is to open new retail locations. In these days of the tight dollar, it is not always too easy for the average independent retailer to make the necessary investment for both frozen food equipment and frozen food stocks that are required to open a frozen food department."

"It is quite evident that every retail grocer or food store operator wants to handle frozen foods—and knows that he must carry frozen foods in order to classify himself as an operator of a complete food market and to assure his customers of one-stop shopping."

"This is proven conclusively by the fact that our average of eight installations of cabinets per week, over 70% have been installed in new accounts."

"We are interested in selling the largest possible volume of frozen foods, and because the frozen food display cabinet is the most essential link in establishing new accounts, we feel that it is most important that we be able to furnish these freezers

if we wish to survive and grow in the years to come.

"In making this equipment available, we must, of course, provide for proper installation and refrigeration service, so that the retailer's investment in frozen food stock will be protected."

Community Frosted Food Co. entered the field some 10 years ago, establishing a locker plant and frozen food distributorship in Doylestown, Pa.

It has since expanded to become one of East's largest frozen food distributors.

The company distributes Seabrook Farms products in the metropolitan Philadelphia area and surrounding counties, serving both independent retailers and institutions with a variety of frozen foods.

**NEW DESIGN—
PROMPT DELIVERY**



**JUNIOR
ICE MAKING
PLANTS**

1/2, 1 and 2 TON CAPACITIES

All Steel, Shipped Assembled—Complete with Raceway Coils and Agitator. Available with Electric Motor, Gasoline or Diesel Engine Driven, Ammonia or Freon Refrigerating Units.

(Refrigeration Engineering Corp.)

RECO PRODUCTS DIVISION
2020 Naudain Street, Phila. 46, Pa.

EXCLUSIVE, PATENTED FEATURES MAKE

KOLD-HOLD

TRUCK PLATES

THE MOST

dependable known

NO CASE OF OPERATIONAL FAILURE EVER REPORTED

When you buy Kold-Hold Refrigeration Plates for your truck, you can count on a lifetime of low cost, highly efficient refrigeration. For, with over one-half million Kold-Hold plates in use today, there has never been a case of operational failure reported. Trucks equipped with Kold-Hold Plates have been subjected to the most severe operating conditions possible, in all types of trucks. And never yet have they failed to provide the refrigeration needed.

"PERIMETER FREEZING" ELIMINATES OPERATIONAL FAILURES

The extra long life of Kold-Hold Plates is due to exclusive design features which eliminate the operational failures found in conventional plate design. In Kold-Hold Plates, the refrigerant passes through tubing along the outer edges of the plate first . . . before it reaches the center. (See drawings below.) As a result the outer edges freeze first and the strain caused by the expansion of the eutectic is placed on the center and strongest part of the plate.

DUE TO THIS PATENTED METHOD OF CON-

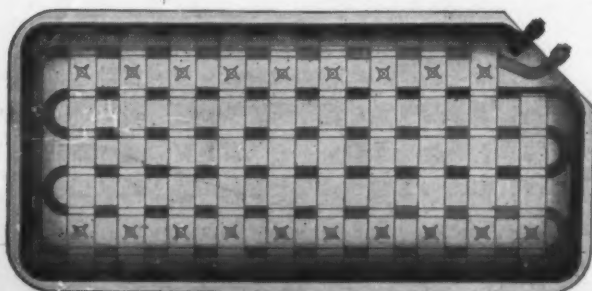
STRUCTION WHICH RESULTS IN THE PERIMETER FREEZING FIRST, KOLD-HOLD TRUCK PLATES CANNOT SPOIL YOUR TRUCK LOAD, THROUGH MECHANICAL FAILURE.

There are other patented features which help make the Kold-Hold Truck Plate the most dependable on the market today. The streamlined design and rounded corners provide extra strength where it's needed most. There's no chance for ice to cake over the end.

The drawing at the left shows how the tubing carries the refrigeration all around the outer edges of a Kold-Hold Plate before going into the center. This takes the strain off the edges. The end view shows how the center of a Kold-Hold Plate "gives" as the eutectic freezes and expands. In conventional plate designs, the center freezes and places excessive strain on the edges.

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protects every step of the way

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GENERAL

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..... To Get More of Your Business

MM 4 FUL VISION CASE

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4' Ful Vision Case, Triple Thermopane Glass. Coils Hooked Up, Valve Installed.

Chrysler Airtemp 1/4 HP air cooled unit \$54.00



GENERAL REFRIGERATORS CORPORATION

678 Broadway, New York 12

Gr. 3-1222

February Wholesaler Volume Follows Slow Pace Set In January

WASHINGTON, D. C.—February sales as reported by 20 refrigeration equipment and parts wholesalers were off 14% from a year ago and 10% from January, the Bureau of the Census reported.

For the first two months of 1949, the firms' sales were 15% below those for the comparable 1948 period. February sales of the concerns totaled \$494,000.

Reports to the bureau by 81 appliance and specialties wholesalers showed their February sales declined 1% compared with February, 1948, but increased 13% compared with January. Dollar volume in the first two months of this year was 4% less than for the same period a year ago. These wholesalers reported total February sales of \$9,190,000.

End-of-February inventories of 15 refrigeration equipment wholesalers were 1% below both those for a year ago and January, total value at cost being \$1,397,000. February inventories of 59 appliance wholesalers rose 25% above a year ago and 5% over January. Total value of their inventories was \$13,105,000.

Sales volume for the total reporting panel (2,996 wholesale houses) during February was approximately the same as recorded in the previous month, the bureau said. Compared with February, 1948, however, the bureau added, a drop in sales level of 3% is indicated.

On a cumulative basis, the first two months of 1949 dropped 6% below the corresponding period a year ago, the bureau stated. With but few exceptions, all trades covered by the report registered lower dollar volume sales levels compared with a similar period in 1948.

February inventories gained 3% over the previous month and 14% over February, 1948, according to reports submitted by 1,962 firms.

Fiberglas Issues Comparative Data on Air Filtering Costs

TOLEDO—"A Comparative Study of Air Filtering Costs in Central Systems," a four-page folder containing data on the costs of air filtration, with comparative figures on installation and maintenance costs of cleanable units and replacement-type air filters, is now available from Owens-Corning Fiberglas Corp. here.

A form is included for use by the specification writer and others, in calculating comparative costs for a specific installation.

Nebraska Dealers Plan Show

NORTH PLATTE, Neb.—Home appliance dealers here have set May 24, 25, and 26 as the dates for their annual appliance show. Due to lack of a building large enough to accommodate the crowds the event drew last year, the dealers will exhibit their displays at their places of business.

Figures on Appliance Wholesaler Volume

INVENTORY, END-OF-MONTH (AT COST)

	Per Cent Change	Feb. 1949	Feb. 1948	No. of Firms	Reported
		From Feb. 1948	From Jan. 1949	Reporting	Dollar Values (add 000)
Appliances and specialties wholesalers	+25	+5		59	13,105
New England	*	*		*	*
Middle Atlantic	-7	-10		8	1,844
East North Central	+19	+13		9	1,397
West North Central	+24	+1		7	1,199
South Atlantic	*	*		*	*
Pacific	+19	+14		9	1,641

*Insufficient data to show separately.

SALES

	Per Cent Change			Feb., 1949 Sample	
	Feb. 1949	Feb. 1949	2 Mos. 1949	No. of Firms	Reported
	From Feb. 1948	From Jan. 1949	From 2 Mos. 1948	Re- port- ing	Dollar Sales (Add 000)
Appliances and specialties wholesalers	- 1	+13	- 4	81	9,190
New England	-16	+ 9	-17	7	656
Middle Atlantic	+26	+40	+18	17	2,289
East North Central	+ 3	+13	0	14	1,647
West North Central	+ 4	-10	- 3	9	891
South Atlantic	+ 7	+31	- 2	14	1,738
Pacific	-24	- 1	-25	9	703

There's No Window, So Store Cuts Hole for Window Unit

CROWLEY, La.—An unusual application of package air conditioning equipment can be found in the Barnett Paint Store here, where a window-type room air conditioner has been installed in a wallpaper display room.

There it is reportedly doing a quiet, unobtrusive selling job on customers.

Merchandising wallpaper, like many other phases of the home furnishing business is, in many cases, a time-consuming operation, with the salesman doing his level best to help a nonplussed husband and wife make the necessary "family decision" in selecting the right color scheme and pattern.

The room conditioner acts as a "silent partner" to the selling man during this operation, affording comfortable surroundings for the querulous couple. Barnett's store reasoned that a "cool and collected" customer is more able to make a satisfactory selection of wallpaper than a perspiring, fidgety individual bothered by high temperature.

Barnett's wallpaper display room is about 18 ft. long, 9 ft. wide, and 11 ft. high. A ½-hp. Frigidaire room air conditioning unit was installed near the ceiling in an out-of-the-way position. Because there was no window available, an opening was cut in the wall for the conditioner.

Measuring 13½ in. high, 26 in. wide, and 29½ in. deep, the unit circulates cool, filtered air at a rate of 200 c.f.m. Angled grilles direct cool air into the room.

Baltimore Aircoil Names Agent To Cover Gulf States Territory

BALTIMORE—Standard Brass & Mfg. Co. of Beaumont, Tex., has been appointed exclusive representative of Baltimore Aircoil Co., Inc., in the Gulf States, it was announced by John Engalitcheff, Jr., BAC president.

Sidles Co. Gets New Quarters

LINCOLN, Neb.—The Sidles Co. with headquarters in Omaha has purchased for \$25,000 a 125-ft. frontage between 16th and 17th on "M" St. here. Existing old buildings will be torn down and a new building erected to house the firm's Airtemp air conditioning wholesale quarters for Lincoln and vicinity.

Amendment Would Lighten Cooling Requirements In Textile Mill Legislation

COLUMBIA, S. C.—A committee of the South Carolina House of Representatives recently returned a favorable report on a modified bill to require textile mills to air condition their plants.

The bill had been cited on the House floor as "anti-industry" legislation. It also has been scored by the Cotton Manufacturers' Association of South Carolina.

The bill came out of the committee with a close 11-10 majority favorable report, plus a recommended amendment. It previously had come out with a majority favorable report but was sent back to the committee for hearings.

A spokesman said the recommended amendment would lighten temperature requirements to a point where the bill's terms could be met with air wash, rather than refrigerated, air cooling systems.

The Cotton Manufacturers' Association has estimated the refrigerated systems would cost the industry \$40,000,000.

REFRIGERATION UNITS WANTED

Desire to purchase ¼ to 1-HP Sealed or open type; standard brands; Complete condensing units; Give full details.

Box 3071, Air Conditioning & Refrigeration News

Some Say

"It's a Great Life"

Will you have One?

Refrigeration that builds up your reputation

WHEN you install Carrier Compressors, you're giving your customers the kind of product that builds good will and more business for you. Unlike ordinary compressors, Carrier Compressors deliver efficient, economical service not only when they're first installed, but also after they've had hard use.

Carrier Compressors Keep Oil from Robbing Refrigeration

Most ordinary compressors perform up to par at the start. After a few months, however, they let oil get into the refrigerating coil to rob the refrigerant of its effectiveness. But not Carrier Compressors! They keep the oil where it belongs—in the crankcase. They do this by a series of Carrier-designed steps, among them:

- 1 An unusually large suction manifold, where entrained oil particles are separated from the mixture.
- 2 A 90° turn in the gas flow, which causes additional oil particles to impinge on the side of the manifold. This oil—plus the oil separated previously—is returned to the crankcase via a drilled passage.
- 3 An oil-return check valve between the suction manifold and the crankcase. This valve prevents oil from traveling from the crankcase back to the manifold.

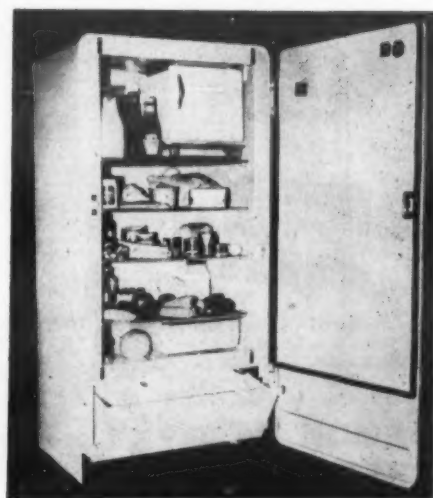
Install Carrier Balanced Refrigeration for Best Results

Carrier Compressors and Carrier Cold Diffusers are designed and made to function as a team. Perfect partners, they deliver maximum refrigeration at minimum cost. The Carrier reputation, earned through early pioneering and years of constant research and practical experience in refrigeration, is assurance of satisfaction. Write for the Carrier Compressor Catalog CR240 or the Carrier Cold Diffuser Catalog CR241. Carrier Corporation, Syracuse, New York.



In order to get new customers,

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Standard-deluxe,
9.8 cu. ft. capacity

LOCKRATOR

household
refrigerators for

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F.O.B. customer's stores anywhere in United States!

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AIR CONDITIONING • REFRIGERATION • INDUSTRIAL HEATING

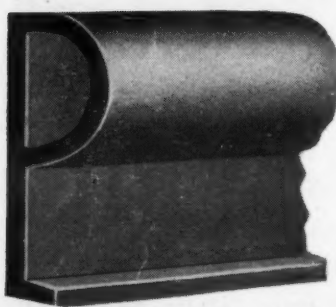
TECHNIFLEX Refrigeration Specialties

are especially designed to provide **IMPROVED** refrigeration accessories. Using only quality materials and workmanship, you will find they develop new standards of satisfaction from your customers.

Ask your regular dealer for these items or send for bulletins.

Illustrations at right—top to bottom:

Improved Charging Line
Vibration Eliminator
New Door Gasket Notcher
Techniflex Gaskets



TECHNIFLEX CORP.

49 JERSEY AVENUE, PORT JERVIS, N.Y.

Distributor To Sponsor Home Show for Dealers

DENVER—As part of its 40th anniversary celebration, Auto Equipment Co., appliance and housewares distributor here, will sponsor a home show early in May in the Shirley Savoy hotel.

The first two days of the event, which company executives describe as "the first such show at the distributor level," will be devoted to dealer training and promotion.

More than 1,500 dealers from the Rocky Mountain Empire states will be invited to attend. Each dealer is being sent three postcards, three follow-up letters, and a final notice in the form of an engraved invitation.

"It is our opinion that a show of this type will provide the dealer with worthwhile and very necessary sales and promotion information as well as furnishing him with sufficient product knowledge to enable him to be better equipped to sell merchandise than at any time since the war," it was pointed out by E. L. Huff, sales manager of the household division, who is in charge of the event.

"Dealers in general are worried about the appliance and household market in the future, feeling that cutting of prices and sales chaos may become a reality."

The general public will be invited, via a full-page newspaper advertisement, to attend the show following the two days devoted to the dealers.

Door prizes have been supplied by 18 cooperating manufacturers for both consumers and dealers, according to Huff. To be able to participate in the drawings, consumers must register at each booth.

'Gold Mine' for Salesmen

DAILY REPORT HERB NAMES, INC.							
Indicate with (X) for new prospect and as to whether dry or night call							
Salesman	Name and Address	Day Call	Night Call	Where or How Contacted	Prospect Name (if New Pros.)	Prospect For What	Remarks
1							
2							
3							
4							
5							
6							
7							
8							
9							

'Daily Report' Form Helps Servicemen Note 'Whole Story' on Prospects Found on Calls

DENVER—Refrigeration servicemen of Herb Names, Inc., appliance dealership here, have proven a valuable source of new appliance prospects through use of a printed "Daily Report" sheet which each carries on every home repair call.

The appliance service crew contacts scores of people per week, according to Herb Names, head of the firm, which operates a large downtown store, plus suburban stores in South and East Denver.

Recognizing the need for obtaining prospects from any possible source, Names has equipped each serviceman with a Daily Report Sheet designed solely to furnish prospect names for the outside selling staff.

The report sheet is divided into eight columns, which the repairman utilizes with "x's" and remarks to give the whole story on any potential appliance buyer.

The first column is marked "New Prospect?" with space for name and address in the second. Two following columns indicate whether the prospect wants a salesman to make a day or evening call.

In the next column the serviceman indicates where or how he contacted the prospect, and in the following space, the source of the prospect if referred by another customer.

The seventh column asks "Prospect For What?" to be filled in when the report is completed. In the last section is space for "Remarks" which will be helpful to the salesman when calling—such as whether she has small children, whether the family is interested in modern electrical living, etc.

Use of the report sheet, in combination with a training program which all Names servicemen have attended, has the advantage of not only including all necessary information, but guiding the serviceman in making a sale if the possibility exists, according to Names.

"In making out the report, the form suggests all sales profits which he can pass along to the prospect, and helps him to create ownership desire," the dealer pointed out.

Frequently, filling out the report in the home reminds the serviceman to look at all the appliances, and to do

as complete a job as possible.

The daily report sheets, when turned in each evening to the downtown store, are made up into duplicate prospect cards, one card going to the salesman whose turn is next, and the other kept in the office as a check card.

The prospect contacted by the serviceman belongs to that salesman for a period of 30 days, during which the salesman contacts the customer at frequent intervals, until the sale is made.

If it is not closed within 30 days, the sales office puts the card on an "open" basis which means that any salesman can follow up the prospect and will be entitled to full commission on the sale.

MacLean Is Appointed Tesco Field Engineer

NEWARK N. J.—Ted Yecies of Tesco Distributors, wholesaler of refrigeration parts and equipment, named Alexander MacLean field engineer for Essex and Passaic counties, New Jersey.

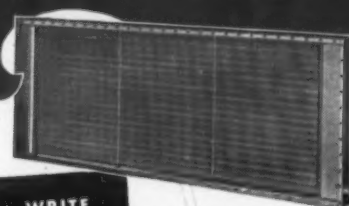
MacLean was formerly sales manager for United Stoker Co., and was with Dun & Bradstreet as analytical specialist.

A. MacLean He served as air conditioning engineer in the U. S. Army and worked on the Pentagon building. Later, he was transferred to the Transportation Corps and toured the country lecturing on "Controlled Materials Plan." He also was supervisor of procurement on Army installations.

He is a member of A.S.R.E., Army Transportation Society, Society of American Military Engineers, and Society of the Pentagon.

COILS! COILS! COILS!

Any Type . . . Any Size
PROMPT DELIVERY



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FOR
DETAILS

UNITED STATES AIR CONDITIONING CORPORATION
Come Ave. S.E. at 33rd • Minneapolis 14, Minnesota

demand DETROIT CERTIFIED VALVES and CONTROLS



Look for this Certificate
—only Authorized
DETROIT Wholesalers
sell certified Controls.

Protecting YOUR Reputation—Maintaining OURS

DETROIT, famous for quality for over seventy years, now offers you the most aggressive and complete backing in its history. In addition to DETROIT's great nation-wide distributing organizations and an exceptionally well qualified factory service group, every control in the DETROIT line is Certified. This means products you can sell with confidence because

they are built to give your customers the maximum in convenience, reliability and economy—greater satisfaction for users, added profit for you. The next time you order refrigeration valves and controls, specify DETROIT. For, only with DETROIT do you get the important plus value of this Certified Quality—protecting your reputation, maintaining ours.

DETROIT

LUBRICATOR COMPANY

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Division of AMERICAN RADIATOR & Standard Sanitary Corporation

CANADIAN REPRESENTATIVES: RAILWAY & ENGINEERING
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DETROIT HEATING AND REFRIGERATION CONTROLS •
ENGINE SAFETY CONTROLS • FLOAT VALVES AND OIL
BURNER EQUIPMENT • DETROIT EXPANSION VALVES
AND REFRIGERATION ACCESSORIES • STATIONARY
LOCOMOTIVE LUBRICATORS

Serving home and industry. AMERICAN-STANDARD • AMERICAN BLOWER • CHURCH SEATS • DETROIT LUBRICATOR • KEWANEE BOILER • ROSS HEATER • TONAWANDA IRON

Maher Succeeds Farnham In Boston Institute Post

BOSTON—Appointment of W. Richard Maher, Jr., as assistant to John G. Waddell, managing director of the Electric Institute of Boston was announced by the Institute recently.

Maher succeeds Richard E. Farnham, who is now sales promotion manager for the Boston distributing division of Admiral Corp. He has been for several years assistant director of the air force communications school at Gunter Field, Montgomery, Ala.



Here's Your Copy of the New
DEPENDABOOK No. 149

Refrigeration
PARTS CATALOG

Send for this to-the-trade-only catalog of refrigeration parts and supplies . . . Very complete . . . Very handy to use . . . In use all over the world!

The HARRY ALTER CO.
1728 S. Michigan Ave., Chicago 16, Ill.
134 Lafayette Street, New York 13, N.Y.

WHOLESALE ONLY



Chattanooga Appliance Sales Rise In February, But Fail To Equal '48 Pace

CHATTANOOGA, Tenn.—Though February sales by local dealers of most major appliances gained substantially over January, all except clothes driers were well below February, 1948 figures, reports issued by the Electric Power Board of Chattanooga have revealed.

Clothes drier sales, contrary to the general trend, were up 33% from last year yet down 14% from January.

Water heater sales were down 66% from January, but that month's sales were exceptionally high. However, they were 25% below February, 1948 sales.

Home freezer sales equalled January's but were 13% below last year's.

As compared with January, February sales of refrigerators were up 30%, ranges 26%, ironers 38%, vacuum cleaners 60%, and clothes washers 24%.

Set beside last year's figures, refrigerator sales were down 44%, ranges 26%, ironers 52%, vacuum cleaners 25%, and clothes washers 45%.

Average unit price of the appliances varied little from last year except for home freezers. Last year the average unit price for freezers was \$433.16. This year it was \$324.20.

Unit sales, average unit price, and total sales value for February were as follows:

Appliance	Unit Sales	Average Unit Price	Total Sales Value
Refrigerators	253	\$ 276.26	\$69,893.78
Home Freezers	13	324.20	4,214.60
Ranges	303	234.98	71,198.94
Water Heaters	151	122.63	18,517.13
Ironers	18	169.16	3,044.88
Vacuum Cleaners	1,167	67.98	79,332.66
Clothes Washers	242	171.51	41,505.42
Clothes Driers	12	229.75	2,757.00
Air Conditioning Units	8	2,003.99	16,031.90
Refrigerators, Commercial	10	886.72	8,867.15
Freezing Cabinets	1	425.00	425.00
Beverage Coolers	18	235.36	4,240.00
Ice Makers, Water Coolers	1	173.00	173.00

Richmond G-E Supply Picks AFL Union Local

WASHINGTON, D. C.—As the result of an election held March 22, Office Employees International Union, Local 189 (AFL) has been certified as representative of all employees of General Electric Supply Corp., Richmond, Va., except office and clerical workers, salesmen, sales specialists, confidential employees, and supervisors, the National Labor Relations Board announced. The vote was 8 to 5.

Colen-Gruhn Named Distributor

NEW BRITAIN, Conn.—Appointment of Colen-Gruhn Co., Inc. as distributor of its Universal major appliance line in the metropolitan New York area has been announced by Landers, Frary & Clark here.

Laundry Equipment Post at Westinghouse Goes to Fay

MANSFIELD, Ohio—The appointment of H. B. Fay, as merchandise manager of the laundry equipment department of the Westinghouse electric appliance division, was announced today by T. J. Newcomb, sales manager.

Fay has been laundry equipment supervisor for the division on the West Coast since 1947. He succeeds R. J. Sargent, who was recently named manager of the laundry equipment department.

In his new position, Fay will direct the conduct of the department's sales activities throughout the country. He joined Westinghouse in 1933, and after working in both the production and service department was transferred to the West Coast.

Curbing Dealer Operations Violates Anti-Trust Law, 2 Texas Suits Charge

AUSTIN, Tex.—Texas anti-trust laws are violated when a manufacturer penalizes a dealer for selling outside his assigned territory and when a distributor attempts to require dealers to maintain minimum price levels, State Attorney Price Daniel charged in two suits filed in the state district court here recently.

Daniel filed suit against the Chambers Corp., range manufacturer, on the first charge and against Edwin Flato Co., Houston distributor, on the second. The cases, though instituted at the same time, are not connected in any way. Flato, it was noted, however, is a Chambers distributor.

Daniel is asking an injunction against these firms and penalties ranging from \$50 to \$1,500 for each day of the alleged violations.

Texas has no fair-trade law, it was pointed out, and therefore gives no legal basis for the establishment of minimum retail prices.

These cases are only two among several that the attorney general has started against manufacturers and their Texas distributors.

Daniel said that his investigations in these several actions have disclosed that some retailers have been refused shipments of products because they would not cooperate with the manufacturer or distributor on price minimums.

The investigations have also uncovered instances where manufacturers had fined retailers who had sold their products below established minimum prices, he asserted.

Poll Will Air Views Of Dealers on Controls

WASHINGTON, D. C.—Some 10,000 installment retailers are going to tell the House Small Business Committee what they think about Federal control of consumer credit terms.

The dealers' opinions will be made known through a questionnaire sent them by the Retail Credit Institute of America at the request of the committee. This information, along with related data now being prepared by the institute, is expected to be presented to the committee around the end of April.

The questionnaire asks for "yes" or "no" answers to 11 queries regarding Regulation W and government regulation of consumer credit in general.

It has been reported that the Federal Reserve Board may soon either modify Regulation W or revoke it entirely, but may ask for authority to restore some form of credit controls at will.

WILSON REFRIGERATION, INC.

- FARM AND HOME FREEZERS
- REACH-IN REFRIGERATORS
- WALK-IN REFRIGERATORS
- FARM MILK COOLERS

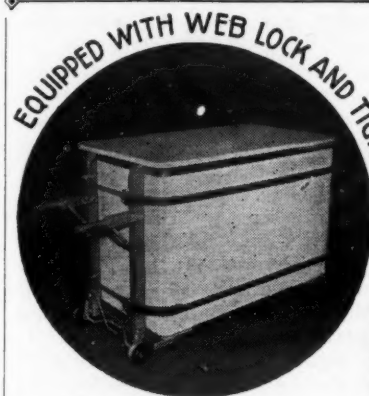
DIVISION OF WILSON CABINET CO., INC.
SMYRNA • DELAWARE

DON'T REBUILD Armatures

Save BY BUYING NEW
WAGNER Armatures

They have new core iron and windings, new commutators properly undercut, new shafts, new centrifugal short circuiting devices, new rocker arm and brush holder assemblies with brushes. They are dynamically balanced, fully tested, ready to install. Get them now from your Wagner distributor. Name on request.

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ESTABLISHED 1891
6471 Plymouth Avenue, St. Louis 14, Mo., U.S.A.
ELECTRICAL AND AUTOMOTIVE PRODUCTS



Are You Looking for An Easy Way to Handle Stoves, Refrigerators and Freezers

Solve Your Problem with the New **ROLL-OR-KARI Dual Trucks**

Patented Step-On-Lift • Folding Handles
Capacity 1000 Lbs. • Shipping Weight 40 Lbs.
WRITE TODAY

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MANUFACTURERS
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we take our  off to
GE, WESTINGHOUSE, KELVINATOR, FRIGIDAIRE, et al.
builders of the finest in conventional size refrigerators

But we take our hat off to
NO ONE when it comes to
SPACE-SAVING REFRIGERATORS

now

Acme
new full **5.6** cubic ft.
LOWBOY

America's **BIGGEST** Refrigerator

... for the average American family faced with the problem of space limitations!

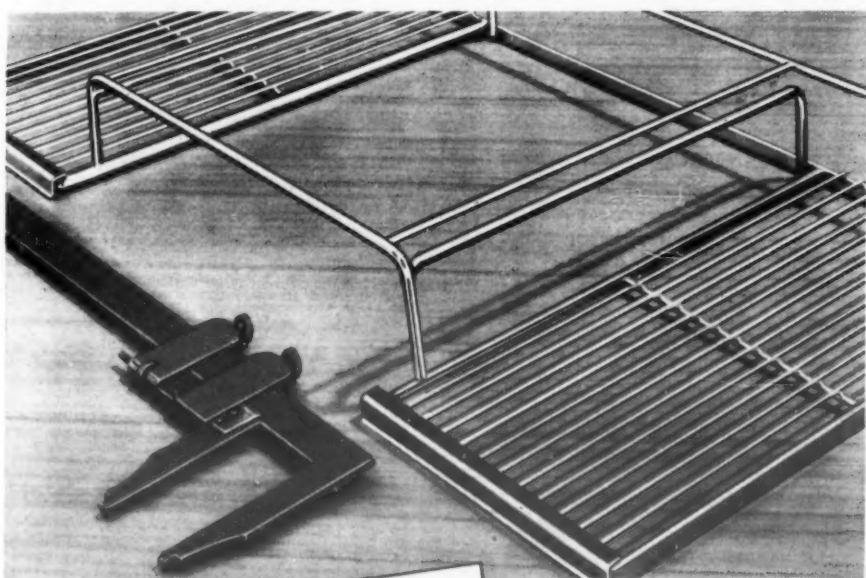
The leaders are first again with **Acme** — this time it's the sensational space-saving full 5.6 cu. ft. refrigerator to meet the demands of today's market.

Check the precision construction, the scientifically engineered space utilization. Check every feature and you'll see why Acme-National takes a back seat to no one in the field of space-saving refrigeration.

Available in 4 distinct sizes. Write, wire or 'phone for complete information about your territory, today!

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634 DEAN STREET • ST 3-3040 • BROOKLYN 17, N. Y.

LEADERS — not followers, in the field of Space-Saving Refrigeration



SPECIFICATION
United! because it's Accurate

Welded wire assembly for a modern refrigerator to hold crisper tray and form side shelves beside the freezing unit.

Here at United we think of accuracy, not in terms of approximate dimensions or angles, but in terms of quick assembly on your own production line so that you get rapid production without rejects. In the above assembly there are 7 critical dimensions, 4 points where the shelf attaches to the cabinet, width of the crisper tray slide at front and back, and clearance on the tray. To hold all these dimensions with a material as flexible as welded wire takes accurate jigs and plenty of "know how." When you require a welded wire part where accuracy is needed, bring your problem to United, where the meaning of accuracy is understood, down to the last detail.



UNITED STEEL AND WIRE CO.

150 FONDA AVE., BATTLE CREEK, MICHIGAN

Easy-To-Understand Style In Home Freezer Demonstration Is Effective Sales Clincher

DULUTH, Minn.—Economy plus convenience, proved by demonstration . . . that's the home freezer sales formula, says Coolerator sales manager Bill Conley.

"We are convinced that no matter how well the convenience and savings features are presented to freezer prospects, most sales are not completed until the consumer is shown the real significance of these sales facts by actual demonstration," Conley states.

"The Coolerator freezer story, 'A home freezer doesn't cost . . . it pays for itself in savings of time, work, and money,' is enthusiastically received whenever it is presented. Homemakers who are always anxious to economize in their family food budgets or to save time and work in their kitchen tasks exclaim: 'Wonderful! . . . HOW?'

"How can I save money?"

"How can I save time in food preparation?"

"How do I process foods for home freezing?"

"How do I package foods for freezing?"

"How do frozen foods compare with other foods in taste, nutrition, and appetite appeal?"

"What foods can I freeze?"

"Questions like these mount in the imaginations of homemakers who are intrigued by the great possibilities of home freezing. They want to know everything about this new way of living. But it is neither practical nor



Driving home the "savings" argument, Mary Schwinn, Coolerator home service advisor, gets keen response from price-conscious audience.

possible for the average appliance salesman to conduct a complete home economics course on home freezers for every prospect. Dealers can, however, give this instruction to groups of customers by planned demonstrations."

Such demonstrations—well-planned, well-executed, and well-attended—are the most important single approach to widespread consumer education, Conley believes. In order to make certain that this activity receives top billing in the national freezer sales promotion picture, Coolerator is launching an integrated countrywide demonstration program for all Coolerator dealers. Under the direction of J. J. Laundergan, newly ap-

pointed Coolerator freezer specialist, dealers will carry the freezer story to all markets of America with these demonstrations.

A key factor in this campaign is the new Coolerator Freezer Demonstration Guide, which serves as a pattern for all local demonstrations. Prepared in cooperation with leading home economists, this guide permits each Coolerator dealer to stage an effective demonstration with a minimum of cost. This Demonstration Guide takes the format of a stage play script with suggested dialogue, action instructions, lists of properties, outlines for effective invitations, sample publicity and advertising.

Since no demonstration can hope to

Post-Demonstration Follow-Up



After the demonstration comes the informal period where members of the audience actually eat food served from the home freezer being shown. This session provides salesman with golden opportunity to catch prospect at peak of interest.

succeed without attendance, advance planning is a principle consideration in this presentation. Invitations must excite interest that compels attendance. While the invitations vary with the type of demonstration, the guide suggests the following methods for general meetings: Newspaper advertising on a definite schedule, direct mail invitations to the regular dealer mailing list, personal telephone calls to interested customers appearing on the prospect lists. Radio spot announcements, special brochures, small poster campaigns are also being used with marked success.

Everyone who eats is a prospect for these demonstrations, and generally these meetings are slanted toward a general audience. However, alert dealers often stage this demonstration for specific groups such as women's clubs, home economics classes, church groups, and farm organization auxiliaries. It also has been very effectively used at home shows, exhibits, and fairs of all types.

By careful planning, this demonstration guide offers complete flexibility for all conditions of consumer education. With few minor alterations it may be shown to small home groups or to large public audiences.

For best results, according to Coolerator's thinking, the meetings should be informal and folksy. Written in flowing, conversational language, the demonstration script is simple and friendly in tone. By

virtue of this simplicity it is not always necessary to secure the services of a graduate home economist to lead these demonstrations. Many dealers have successfully employed sales-minded home demonstrators, teachers, and average homemakers who have adequate speaking ability.

It is the intent of these demonstrations to emphasize the goodness of frozen foods as they come out of the freezer—not to frighten prospects by stressing many minor technical or scientific details of frozen food preparation. Most homemakers find that home freezing is easy. Therefore everything that smacks of the academic is eliminated from the demonstration script in favor of the practical factors which will be encountered by the average homemaker processing frozen foods in her own home.

To set the stage for the meeting leader, a short sound slide film precedes the actual demonstration. In color, it briefly outlines the complete Coolerator freezer story in just 13 minutes, arousing the curiosity of the audience and conditioning them to the terminology and the advantages of home freezing so that home economist demonstration can be more meaningful. Since questions from the audience are encouraged throughout the meeting, the background of this film serves as a basis for audience participation during the question periods.

(Concluded on next page)

Not Hidebound



DELCO PRODUCTS has been in the business of building appliance motors for a good many years. We've been in it long enough to know that latitude must be allowed for last-minute changes in customers' scheduling.

For Delco Products has a sound concept of service. Our experience has taught us to appreciate the manifold problems a manufacturer runs up against. All our resources are organized to help meet them promptly and smoothly . . . to deliver on time.

It's this human, personal quality as well as our complete, modern engineering and manufacturing facilities that makes Delco Products a byword for the finest in appliance motors.



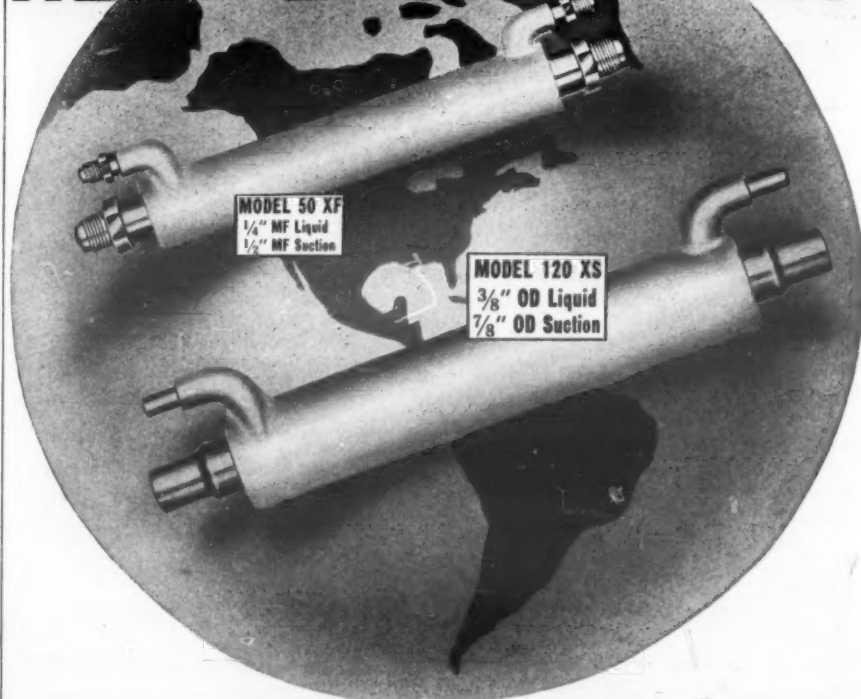
DELCO MOTORS

DELCO PRODUCTS

Division of General Motors Corporation, Dayton, Ohio

Sales Offices: CHICAGO • CINCINNATI • CLEVELAND • DETROIT • HARTFORD, CONN.

HEAT-X CAST ALUMINUM HEAT EXCHANGERS



If your heat exchangers bear the name of HEAT-X you have
(1) Minimum pressure drop. (2) No internal joints . . . no by-pass.
(3) No oil trapping. (4) Compactness. (5) Efficiency. (6) Sizes to match your condensing units. (7) Simple selection data and ratings.
(8) Straight through suction connection. (9) Minimum liquid charge.
(10) Full range of capacities.

"A Heat Exchanger is Only as Good as its Freedom From Pressure Drop."

THE HEAT-X-CHANGER CO., INC.
415 Lexington Avenue, New York 17, N.Y. Brewster, N.Y.

Even a Man Can Prepare Foods for Freezing



An interest-arousing method of demonstration, a male volunteer can process a few items for freezing. This will stress the "simple preparation" theme.

'Audience Participation' Angle Lends Authentic Touch to Freezer Exhibition

(Concluded from preceding page)

By asking the question, "How many people here tonight want to cut down your cost of living?" the demonstration leader commands immediate attention. Everybody wants to save money. With his goal established, the demonstrator sets out to prove that family-size freezers don't cost . . . they pay for themselves in savings.

Exhibits of actual frozen foods prove the advantages of frozen foods over canned foods. A dramatic example is the comparison of drab, cooked-out looking canned peas with fresh, appetizing, natural-color frozen peas. In freezing, nothing is boiled out. Nutritive values and garden-fresh flavor are frozen in. Any month—every month—home freezer owners may enjoy the fresh frozen foods that contribute to better health and more appetizing menus.

The meeting leader also demonstrates how a home freezer saves time; offers more leisure time for the homemaker. She explains that freezer users shop less frequently, yet have a well-stocked miniature supermarket in their homes at all times. They bake and cook in quantity—often freezing complete meals for future use. Since frozen foods are

ready for cooking, they save many minutes of preparation time at each meal.

And "Home Freezing is easy . . . so easy, in fact, EVEN A MAN CAN DO IT! . . . Is there a man in the house who will accept this challenge?"

The male volunteer (or a "plant," if necessary) has a great time before the feminine audience, despite the sly side remarks of the meeting leader, in regard to male supremacy or other good natured needling. And while injecting a humorous note into the demonstration, the ease in which a man can prepare foods for freezing in just a few minutes proves, without a doubt, that home freezing is certainly a simple matter. Concluding this "man-made" incident, the meeting leader compares the 14 tiresome steps required in home canning with the 7 easy steps in home freezing.

Incidentally, to coordinate the demonstration and keep it running smoothly, Coolerator has provided each meeting leader with a set of table top easel charts. These charts not only pace the meeting in logical sequence, but they afford the audience a tangible reminder of the most

important points covered. They are large enough to be read easily, even by the bigger audiences.

Guided by these charts, the demonstration moves quickly through the latest developments in processing and in packaging of frozen foods to the Coolerator savings story which shows the audience how a family of four can save approximately \$240 a year on food costs.

Average food consumption figures used in this presentation are extractions from United States Department of Agriculture surveys and the minimum savings figures are checked with local frozen food sources. At this stage of the demonstration it is important that the demonstrators name the local sources where foods can be purchased at savings. If possible, actual prices are quoted, so that the audience may make comparisons with their own food costs . . . dramatic proof that home freezers really will pay for themselves.

With the savings story firmly established, the demonstration leader returns the meeting to the dealer or distributor who briefly outlines the performance and convenience features of the freezers and other appliances. At this time the demonstrator readies the refreshments—all of which have been stored in the freezer. In just a matter of minutes a lunch is ready for serving . . . usually small sandwiches or rolls, cakes, or cookies, and ice cream sundaes.

For smaller audiences the menu can be more elaborate, but—simple or elaborate—it serves an important function . . . to demonstrate that home freezers are more than mere meat keepers, to impress the audience that freezers can eliminate the burden of extensive last-minute preparations for successful entertaining.

to permit the audience to taste for themselves the freshness and goodness of frozen foods.

While this concludes the actual demonstration, the period following the meeting is the most important from a sales standpoint. It is the ideal time for dealer salesmen to meet new prospects and to move in and sell. With the complete freezer story fresh in their minds, many prospects are ripe for the "closing." Reports of early Coolerator demonstrations reveal that as many as five freezers have been sold during a single demonstration.

NOT EVEN Room Air Conditioners will sell themselves!

Therefore, sell the most salable line. Remington ranks first on vital selling points: Window units and consoles for AC and DC; air and water-cooled, ½-1½ hp. Beautiful cabinets. Thousands in use in 44 countries. Sold direct to installing distributors, giving top mark-up. Ask for details. REMINGTON AIR COND. DIV., CORTLAND, NEW YORK.

Some Say

"It's a Great Life"

How About You?



The refreshment period is actually a continuation of the demonstration since it shows members of the audience how frozen items taste fresh from the freezer.

ZONE MANAGER

OPPORTUNITY

WE are interested in talking to the finest Zone Manager material in the United States for a most unusual circumstance and opportunity in our organization.

If you meet these requirements, please read on.

We are the largest manufacturer in our industry.

We manufacture the finest and most complete line of products in our industry.

Our market, while many years old, has in recent years enjoyed a sensational growth but we are still far from the saturation danger point.

We have every reason to believe this unusual growth will continue at an even greater rate in the years to come.

We are expanding our operations from a merchandising standpoint—both in terms of size and impact—to take advantage of this unprecedented opportunity.

We are looking for a man who knows Distributor-Dealer merchandising and has demonstrated unquestionable ability to successfully administer one of our Zone Operations.

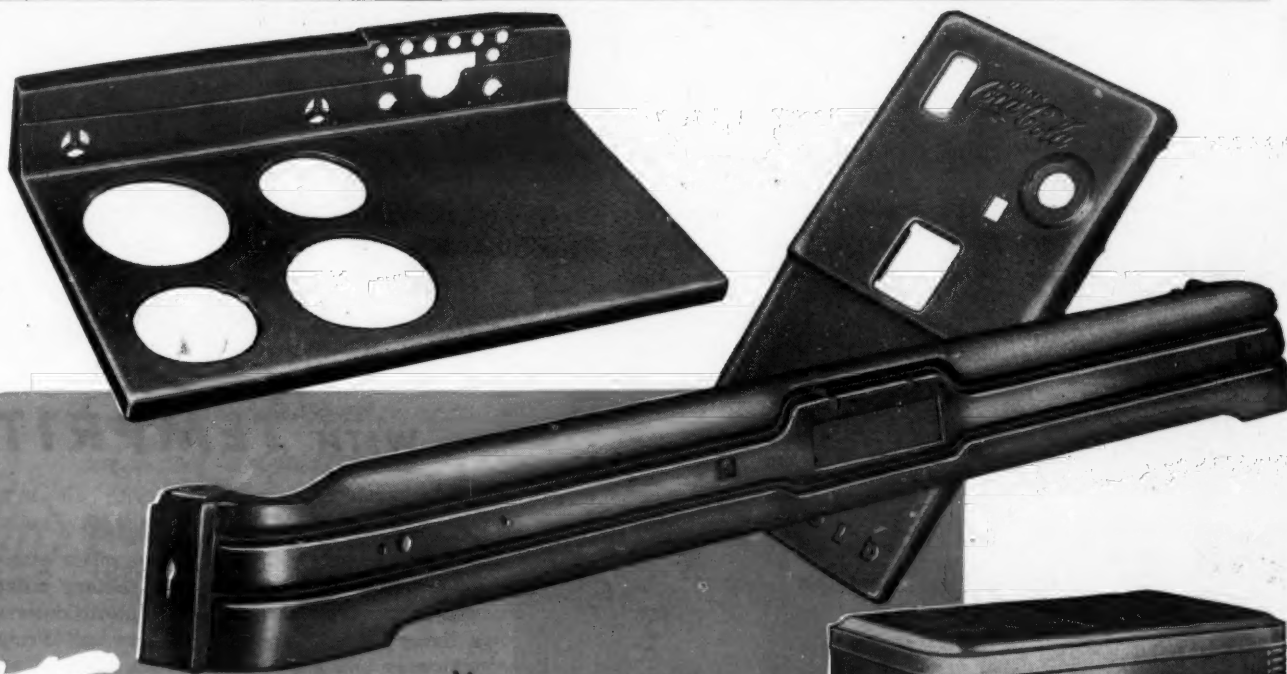
This man's experience should have a Major Appliance background—and commercial refrigeration or air conditioning experience would be helpful—but is not essential.

The man we choose will be young enough to aggressively put in force a most aggressive sales program, yet will be mature enough to have developed sound judgment in the conduct of a territory, enabling him to command the respect and cooperation of his Distributor and Dealer organization.

We are ready to take action now, so if you meet these requirements, please contact us immediately.

All negotiations will be held in strict confidence—and our organization knows of this opening.

Write: Box 3159, Air Conditioning & Refrigeration News



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• Advance Tooling Methods and techniques have proved to be outstanding, efficient and economical . . . for progressive manufacturers in all lines where sheet metal stampings are a major part of production costs.

• Wide experience, engineering skill and most complete facilities are available at Advance for your die and tool requirements. Thorough try-out of all stamping dies on our own modern presses eliminates die troubles in your plant.

Your Inquiry or Consultation Invited



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They'll Do It Every Time By Jimmy Hatlo



Do You Have 'One Foot In the Door'?



Why you can
**CLINCH MORE
SALES...**

...WITH **TEMPRITE**

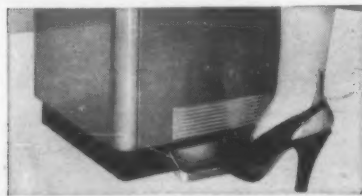
BECAUSE **TEMPRITE** was designed with sales in mind
... you can clinch more sales with Temprite!

Because the most conservative office manager
... or ... the most practical factory manager
will look upon the Temprite Water Cooler with
a lively enthusiasm ... you can sell Temprite
wherever you go!

The Temprite water cooler carries with it no
suggestion of prosaic design, no hint of yester-
day. Its functional, streamlined beauty is re-
freshingly new! Just look at its graceful lines
of gleaming perfection, and inspect every last
detail of craftsmanship ... from its silver-
soldered refrigeration joints to its satin-smooth,
stainless steel top, from its constant-pressure
regulator to its stainless steel lowside.

If you're in the doldrums, Temprite will put
new pep in your step! You'll approach your
prospects with solid confidence! You'll clinch
more sales with Temprite.

WHEREVER YOU GO, in commerce or industry, there's a Temprite model
to fit virtually every drinking water cooler requirement. You can offer
the streamlined styling of the pressure type model or the convenient
bottle cooler for light duty use, or where plumbing facilities are not
available. You can offer the hermetically sealed, air or water cooled
condensing unit or the open type condensing unit. Odd frequencies or
voltages may also be serviced. All models meet requirements of the
National Bureau of Standards and are approved by Underwriters'
Laboratories. All existing local sanitary codes are being met.



FOOT PEDAL, is now available as
optional equipment. All pressure
type models maintain virtually
constant stream height in spite of
outside pressure variations of as
much as 20 to 80 pounds. Annoy-
ing spurting and splashing has
been eliminated.

ACCIDENTAL FREEZE-UP will not
damage unit because of specially
designed Temprite storage tank.

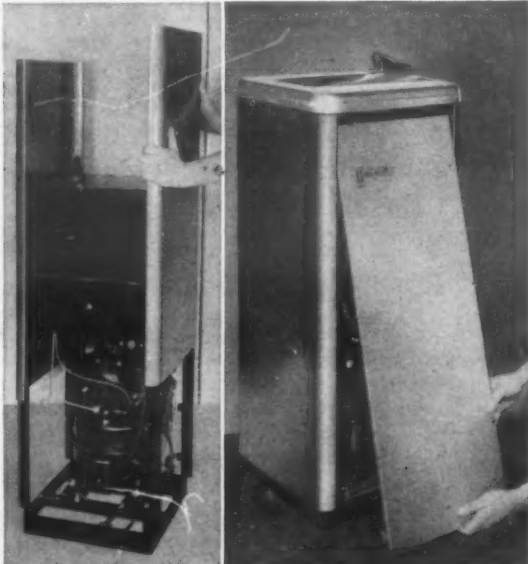
ADJUSTABLE Thermostatic Control
regulates water temperature.

5 YEAR WARRANTY protection plan
available on all hermetic models.



(Above) **EASY FINGER TIP PRESSURE**
starts a smooth, steady flow of
perfectly cooled drinking water!
Sparkling stainless steel top!

(Right) **FRONT PANEL** is removable
in mere seconds for quick serv-
icing. Side panels, not screwed to
frame, may be slid off as shown.
It is unnecessary to remove cabi-
net from plumbing connections.
Any panel which may become
damaged in use, can be replaced
without returning the entire unit.



SINCE 1929
Temprite
Products Corp. 43 Piquette, Detroit 2

Manufacturers of commercial and cabinet type water
coolers, industrial water coolers, carbonators, draught
beer coolers, soda fountain coolers, temperature control
valves, oil separators, equalizer tanks, heat exchangers, etc.

Trade Mark
registered
U. S. Patent
Office:
Est. 1928

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The Hoover Report—An Indictment of Bureaucracy

TO the perceiving citizen the importance of the Hoover Com-
mission reports is two-fold. Unquestionably the commis-
sion's recommendations for reorganizing the Federal govern-
ment will save plenty of money. In the first report alone dollar-
savings from shaking up the executive branch would amount to
almost a \$3,000,000,000 cut in budget needs. Presumably these
savings might eventually be passed along to the private citizen
and to business in the form of lower taxes.

But considered from a slightly different viewpoint, the work
of the Hoover Commission is just as much an evaluation of the
extremes of government as it is a recommendation for administra-
tive cost-reduction. For through the eyes of the commission we
are made to see just how much of a top-heavy bureaucracy has
sprung up during the past few decades. The executive branch
alone has spawned dictatorial, life-controlling agencies at a rate
that makes bacteria seem sterile.

For the most part, these government boards make daily use
of powers whose boundaries never have been clearly established.
Thus the avenue for encroachment upon individual liberty is left
wide open. By re-emphasizing the need for reorganization of
the executive branch, the Hoover Commission is spotlighting the
real threat of government-by-agency.

Another flaw inherent in bureaucratic government is ineffi-
ciency. This curse takes various forms—all of them gross and
dollar-consuming. One of the most flagrant examples concerns
Federal purchases of supplies. It's estimated that the value of
government supplies now stored within the continental limits of
the United States amounts at least to \$27 billion, and probably
much more! At the present rate of consumption, it would take
something like 50 years to use all the supplies now on hand. Says
the Hoover Report:

"Most agencies invest appropriation balances at the end of
a fiscal year in supplies so as to avoid returning such funds to
the Treasury."

Naturally the over-stocking, over-staffing, and over-com-
plexity of such a system is costing us plenty. The Hoover Com-
mission claims that a 10% cut in personnel handling these top-
heavy supplies would save \$27 million, but that another \$250
million could be saved by simplifying the whole routine of pur-
chases.

Such inefficiency means wasted tax money. Yet John Q.
Citizen must pay Washington an income tax, an estate tax, a gift
tax, a social security tax, an admission and dues tax, a luxury tax,
an import tax, a liquor tax, a communication tax, an amusement
tax, a tobacco tax, plus many other "hidden" ones.

And business must pay the Federal government an income
tax, unemployment tax, a social security tax, an excise tax, and
a transportation tax, to mention but a few. All this, mind you,
to support numberless agencies, bureaus, and boards whose
raison d'être is questionable, whose authority is amorphous, and
whose inefficiency is shameful.

The Hoover Commission has shown that \$3 billion of this
waste could be eliminated by cutting down and regrouping multiple
executive groups. With time fleeting, we must urge upon Con-
gress the necessity of not merely approving the suggested re-
forms, but of carrying them through. Otherwise, as Dr. James
K. Pollock, internationally known political scientist from the
University of Michigan has warned, we may never again have the
opportunity.

Information Please:

Valve, Drier, Coil Problems Prompt Queries
By Canadian Refrigeration Service Engineers

Editor's Note: A regular feature of most big meetings of the Refrigeration Service Engineers Society, and always of interest, is the Information Please session. During the one conducted at the tenth annual educational conference of the Interprovincial Association of RSES in Montreal, the board of experts under the direction of Harry Parish, editor of the *Canadian Refrigeration Journal*, handled the following questions:

Q. For ice cream cabinets should an automatic or thermostatic expansion valve be used?

A. Generally, an automatic valve should be employed.

Q. In an ammonia system what would be the difference in cost between bare pipe coils and unit coolers?

A. Exact cost comparison can't be made unless full details are known, but generally speaking, the unit coolers would probably be cheaper.

Q. Will silica gel in a drier pick up alcohol in a system?

A. Yes, it will pick up alcohol. Producers of liquid dehydrants advise you not to use it with silica gel driers in the system.

Q. For a condensing unit serving two or more boxes operating at different temperatures, is it advisable to use a snap-action pressure valve, a throttling valve, or a solenoid?

A. First, it is ordinarily not good to put two cabinets on one condensing unit if the temperatures of the cabinets are more than 10° apart. Such an arrangement is not efficient. Also, if one of the cabinets is operating at low temperature and the low-temperature load is less than half of the total load on the condensing unit, then two units should be used.

Within these limitations, then, a solenoid valve controlled by a thermostat would be preferred. The solenoid should be located in the suction line, although it will work in the liquid line.

(Another of the "experts" said he had always found it advisable to locate the solenoid in the liquid line.)

Q. What is the action of a methyl chloride thermostatic expansion valve operating on a "Freon" system?

A. The valve will try to operate at about 20° superheat instead of the desired 10° superheat. If the valve had a wide adjustment for superheat, it might be possible to change the setting so it would operate satisfactorily, but there are few valves that have this much adjustment. Using a methyl valve with "Freon" will mean a starved coil. A "Freon" valve used on a methyl system will mean a flooded coil.

Q. In selecting cross-fin coils for a butcher box what temperature difference should you use to get the proper humidity?

A. For a number of years we have been using 15° t.d. Now temperatures in butcher boxes are going down to between 32° and 34° F. or even lower. The t.d. will depend on the season of the year and the desires of the butcher. We suggest a 12° to 15° t.d. as an average, provided the temperature doesn't go down to 32° F.

Q. Where should the drier be located?

A. With a physical drying agent, we suggest that it be put in a cold location. A chemical drying agent should probably go into a hot location such as the liquid line.

Q. Can a high side float be substituted for a capillary tube on a domestic job?

A. Normally yes, except that many domestic systems use a split-phase motor that has a low-starting torque. With a capillary, the high and low side pressures equalize during the off-cycle so that a split-phase motor can start. If a high-side float was installed, greater starting torque would be required of the motor. Otherwise, the high-side float could be substituted.

Q. If it would take 2 lbs. of "Freon" to operate a hermetic ice cream cabinet, how much methyl chloride would the system need?

A. Methyl chloride shouldn't be put into a sealed "Freon" system. There is probably aluminum in the hermetic, which, combined with methyl chloride and moisture, might form "liquid fire."

K&M Opens New Store

MUSKOGEE, Okla.—Opening of its new store at 204 S. Third St. here has been announced by K & M Supply Co., refrigeration equipment wholesaler. Darrell B. Robison is manager of the store.

ASME To Hear Talk on
Ground Coil Heat Transfer

NEW YORK CITY—"Experimental Determination of Heat Transfer Rates for Heat Absorbing Coils Buried in the Earth" will be one of the many technical papers to be presented during the spring meeting of The American Society of Mechanical Engineers in New London, Conn., May 2-4.

The subject will be discussed by Charles H. Coogan, Jr., professor and head of mechanical engineering, University of Connecticut. He will speak during the heat transfer session Tuesday morning, May 3.

Also on the heat transfer program is Robert L. Berner, design specialist, Martin Co., Baltimore, Md. Berner's paper is entitled "Heating and Ventilating of the Martin 202 Airliner."

One of the two papers to be presented at the process industries session the afternoon of May 4 will cover "Low Temperature Cycles and Refrigerants." David L. Fiske, New York City consulting engineer, and Walter F. Jones, branch manager, Carrier Corp., New York City, are the authors.

Headquarters for the meeting will be the Mohican hotel.

\$1 Free Service Ticket
Opens Door to Sales,
First Call on Repairs

OKLAHOMA CITY—A ticket which entitles the housewife to \$1 worth of free refrigeration service has proven an excellent "door-opener" for outside salesmen at Oklahoma City Appliances, Inc., major appliance dealership here.

The firm operates a large refrigeration service department, with five outside mechanics, plus a sales department with three outside salesmen.

Each salesman is given a specific territory and is entitled to a commission on any appliance sale in that area. In return, the salesman is required to "cold canvass" his territory and follow up leads originated by refrigeration service mechanics.

When he knocks at the door, the salesman has powerful "goodwill ammunition" in the form of the free ticket.

"We can't lose on this," the management pointed out. "If the customer takes advantage of the \$1 ticket, she helps to familiarize herself with our service. And, since the \$1 ticket is applicable against future household expenses, it is always welcomed at the door."

"In the event there is no opportunity of selling an appliance at the moment, the ticket means that when such opportunities do arise, our servicemen will get first-call, and can relay the information to the salesman covering that area."

John Kramer Sets Self Up
As Manufacturers' Rep.

DETROIT—John J. Kramer has resigned as vice president of American Thermal Industries to establish himself as a manufacturers' representative to cover the states of Michigan, Ohio, Indiana, and Pennsylvania. Harold Muir has joined forces with Kramer to form Kramer-Muir and Associates with offices located at 19419 Ryan Rd., Detroit.

They are representing air conditioning, heating, ventilating, and refrigerating equipment manufactured by Nevinger Mfg. Co.; room air conditioners manufactured by Louis Engineering Co.; and drinking water coolers manufactured by Coolstream Corp.

Osborn Handles Kelvinator

CHATTANOOGA, Tenn.—Newly appointed dealer for Kelvinator home appliances here is the Osborn Furniture Co., 512 Market St.

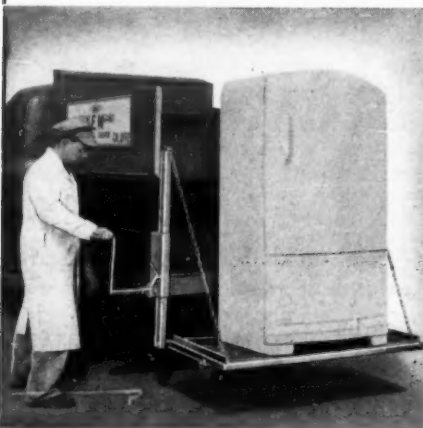
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UNITS • PARTS • TOOLS • SUPPLIES

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prompt—dependable.
Saves you valuable
time lost in pick-ups.**

Write for catalog on your letterhead.

AIRO SUPPLY CO.
2732 N. ASHLAND AVE., CHICAGO 14, ILL.

50% LABOR SAVER



Venco One Man Loader

eliminates a "strong-arm" crew. One man can pick up and deliver anything which can be pushed or rolled onto the loading platform. Easily installed. Capacity 600 lbs. Deluxe model shown above \$119.75.

VENCO VEN CORP.

2832 Newell - Los Angeles 26

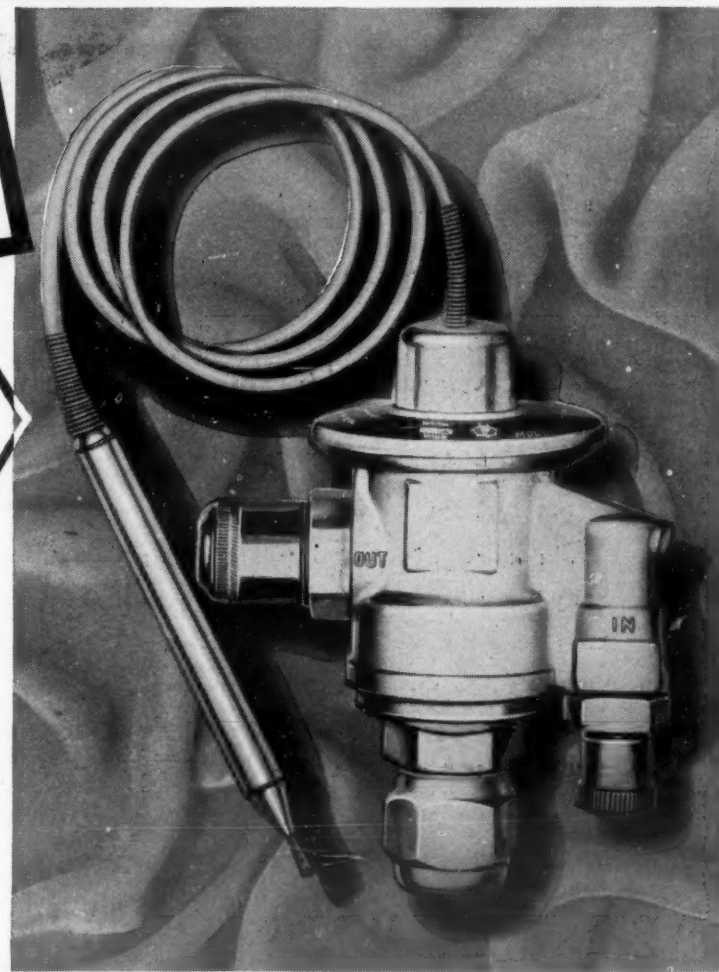


DEPENDABILITY
is a good component
for your product

One A-P Valve serves
all suction temperatures
without adjustment

**MODEL 207, 1/2 ton
THERMOSTATIC EXPANSION VALVE**

Here's versatility that benefits you . . . ONE valve you can confidently use on all your 1/4 to 1/2-ton systems, sub-zero freezers, commercial boxes and air conditioning units. A-P Model 207 Thermostatic Expansion Valve handles them all accurately, dependably, without adjustment or changing of parts! You avoid buying and carrying extra valves. You're always sure of trouble-free service, supersensitive response, closer superheat control and the kind of control dependability that means customer satisfaction. Liquid charged for mounting in any position or ambient temperature. Use it today . . . to your profit.



**Avoid Overload Dangers
with this Pressure Limiting**

A-P MODEL 212 VALVE
FOR 1/2 TON AND 1 TON SYSTEMS

A-P Model 212 is "performance protection" on any system where abnormally high suction pressure may cause an overload problem. Install it in place of any thermostatic expansion valve of similar capacity (1/2 and 1 ton Freon 12 or Methyl). New, extra diaphragm unit limits operating suction pressure to predetermined setting—15, 40, and 55 lbs. Freon 12, and 10 and 30 lbs. Methyl. Thermostatic bulb and standard large-area diaphragm "take over" after overload condition has passed. Liquid charged, may be mounted in any position or ambient temperature. Fixed superheat model No. 211, also available.

AUTOMATIC PRODUCTS COMPANY

2450 North Thirty-Second Street, Milwaukee 10, Wisconsin
Export Dept. 13 East 40th St., New York 16, N. Y.

**DEPENDABLE** Refrigeration Values

STOCKED AND SOLD BY GOOD REFRIGERATION WHOLESALEERS EVERYWHERE . . .
RECOMMENDED AND INSTALLED BY LEADING REFRIGERATION SERVICE ENGINEERS



NEW COLOR
builds extra sales
for you in Deluxe
1949 BEN-HUR
FARM AND
HOME FREEZERS

● COLOR, is the new "buy-word" in home freezers! Introduced for the first time by the 1949 Ben-Hur Deluxe Farm and Home Freezer, Ben-Hur COLOR is meeting enthusiastic praise in homes everywhere — as a welcome means for brightening up home kitchens and making utility room decorating an exciting event again. But the rich "Ben-Hur Blue" is only ONE

of many new selling features in the Deluxe Ben-Hur 1949 Freezer. You'll like the new cabinet front design, new Latch with crystal-clear Lucite handle, new cold control and temperature indicator, new wire food baskets and dividers, and new accessories — if you want them — like ice cube makers and alarm system. Add the FIVE YEAR GUARANTEE on the refrigeration unit, and other time-proven BEN-HUR features, and you have a Deluxe BEN-HUR Home Freezer line that deserves TOP BILLING in any sales program. Write for selling plan and full details TODAY. (*Patent applied for)

BEN-HUR MFG. COMPANY, Dept. AC, 634 East Keefe Ave., Milwaukee 12, Wisconsin

BEN-HUR FARM and HOME FREEZERS

HEALTHFUL LIVING THROUGH FROZEN FOODS

May We
Present...



Need a new bag?

(quoted from page 9 of this book)

You may already know all about many of the suggestions in this book—but keep on reading! The idea in just one paragraph may be worth hundreds of extra dollars to you every year.

No matter how much experience you may have had, or how many sales training courses you may have taken, you can always cash in on new ideas. And sometimes your old ideas need jarring around once-in-awhile.

To prove this point, a sales executive of our acquaintance enjoys showing to intimate friends a clipping of an advertisement which appeared in a certain New York newspaper. It was an advertisement inserted by a luggage firm, and its headline says, so help us:

"Will your old bag do for the week end?"

"It's a Great Life" makes fast reading. The author doesn't throw facts at you; rather, precepts are implanted deftly into the reader's subconscious mind through gay, light-hearted humor and down-to-earth realism. He doesn't preach and he isn't stuffy. He's human.

These 320 laugh-and-fact packed pages are well worth your while. Mail the coupon TODAY!



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BOOK DIVISION OF BUSINESS NEWS PUBLISHING CO.

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IT'S A GREAT Life

A NEW BOOK by GEORGE F. TAUBENECK

(Author of the best-selling "One Foot in the Door")

THAT TELLS IN HUMOROUS FASHION

HOW TO SELL
YOUR SALESMEN
ON SELLING...

You're building what looks like a good sales force—young men and veterans—who are presumably ambitious, confident.

How long will they stay that way? Do they know what selling is all about?

You probably agree with Mr. Taubeneck—it is a great life. But can you infuse your salesmen with a real enthusiasm for selling? Can you give them a tangible goal? Most important, can you get them to sell, sell, sell and work, work, work when the going gets tough?

Can you re-inspire and re-teach your older "salesmen" who have been doing everything BUT sell for the past eight years?

No doubt you can, if you work hard enough at it. But this delightful new book makes that job easy—takes a load off your shoulders.

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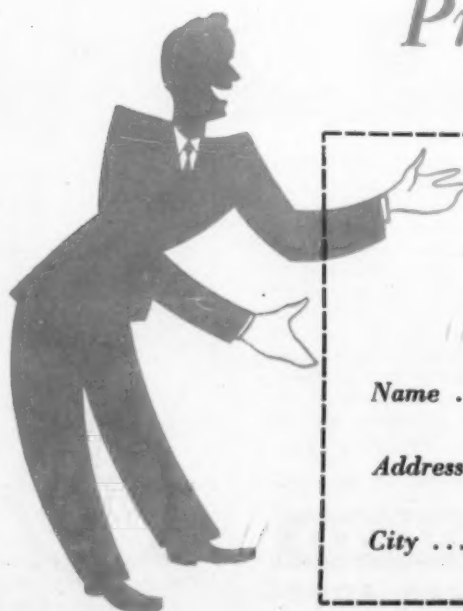
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INSIDE DOPE

by GEORGE F. TAUBENECK

(Concluded from Page 1, Column 1)

what they tell us. Every subscriber to the NEWS faces it now. "It's a Great Life" is dedicated to the solution of that problem.

(Please read the advertisement on page 16.)

Eyewitness Account

35 Hanover Road
Pleasant Ridge, Mich.

Editor:

The attached letter from an English physician should provide some grist for your mill.

And while you're about it, take a good look at Senate Bill No. 5 if you have not already done so.

W. HENRY KNOWLTON

Southborough House
150 Harley St., W. 1
Chelmsford, England

"I was pleased to receive your letter and I welcome your invitation to state my experiences and views of the National Health Service (N. H. S.) in this country. A convenient way of doing this would be to tabulate my observations under the headings of the effect upon (a) the patient; (b) the consultant or specialist; (c) the general practitioner; (d) general observations. You will appreciate that, since I practice as a Consulting Surgeon, my experience and views of this aspect of the matter will be comprehensive.

"Effect of N. H. S. upon the patient.

"The public had been led by our Socialist tub-thumpers to suppose that, with the coming of the N. H. S., a medical Utopia would dawn for them. In point of fact the ordinary working-class patient is less well off than he was before the Scheme started. You will appreciate that the N. H. S. has brought no more doctors, no more nurses, no more hospital beds, and, indeed no more facilities of any kind, into service with the result that there are now infinitely more people competing for the same

amount of facilities. Here is an example... before the Scheme started a general practitioner requiring my opinion upon a working class patient could get an appointment for him to see me at my out-patient clinic at the hospital that same week. Under this Scheme, my clinics (and those of all my colleagues) are overflowing, so that a patient has to wait as long as a month for an appointment. Similarly with in-patients—all the 'public' ward beds were devoted to patients of the lowest income groups; but now these people have to share the same number of beds with people who could, and did, afford private accommodation. Inevitably, therefore, they have to wait longer for admission to hospital.

"A similar thing happens in General Practice. The ordinary family doctor has queues outside his 'office'—most of the people in the queue are either wanting some sort of form signed or else they are coming with some trivial ailment with which they would formerly have dealt quite effectively themselves—e.g. 'Junior' with a snivelling cold in the head. A proportion of the people in the queue will, however, have some genuine, and perhaps serious, complaint but the doctor will find it difficult or impossible to give the necessary time to this patient and there is, of course, a grave danger that in the rush he may miss things.

"The Scheme is being grossly abused by the 'smarter' members of the public. The pawn shops are full of spectacles which patients have obtained from the State and then proceeded to 'pop at Uncles.' Dentistry has developed into an absolute racket—it has been said that we have become 'a nation of weeping and wailing and national teeth!'

"The Minister of Health gave a solemn undertaking that 'any member of the public may use all or any part of the Scheme'—and then proceeded forthwith to deny the right of a patient who prefers to pay for his medical advice, as hitherto, to get his medicines under the Scheme. On the other hand, the Minister has ordained that any foreigner visiting these shores is entitled to all the benefits of the Scheme (without paying any contribution) and there was a case reported in the British Medical Journal a week or two ago of a foreigner who returned to his country with two pairs of spectacles and a complete set of dentures at the expense of the British taxpayer.

"I have yet to meet a doctor who

expresses any satisfaction with the Scheme. We have become a body of exasperated, frustrated, embittered men. We all used to enjoy our jobs—now, we just regard our work merely as a means of keeping the wolf from the door, and for some, even that is not possible. Countless forms have to be completed; our actions are liable to be questioned by local demagogues from the Trade Union Ranks; a doctor is liable to be 'drafted' to a new neighborhood and he may be denied the right to practice a particular specialty in which he has already displayed his prowess. There is no doubt whatever that the Minister is doing all in his power to abolish private practice by making it as difficult as possible for the patient to afford it and by denying doctors the opportunity of practicing it. His aim is to squeeze us all into whole-time salaried civil servants. The tragedy is that he may succeed. So many yield to his pressure through lack of moral courage.

"There are a few shining examples who have put their principles before everything—I know of men of noble character who have sacrificed careers of brilliant promise and have given up doctoring and become small farmers and such-like. Many of the younger men are emigrating and they, perhaps, are our best types—so that our country is in danger of becoming intellectually impoverished.

"Some of us are not taking all this lying down. I myself seize every conceivable opportunity of exposing the absurdities and injustices of the situation. At every possible pretext I carry on a long and acrimonious correspondence with the medical bureaucrats that have been placed in authority over me, and to give them their due, I have met with a certain amount of success in persuading them to see reason. But it is a wearisome business and one looks back with yearning to the days when one was master of one's own destiny and captain of one's own soul.

"All sorts of ridiculous 'regulations' have been issued by the Minister. One of them concerns the scale of fees that a surgeon may charge for operations on private patients in the private ward of a hospital. An attempt has been made to classify all operations into three categories—major, intermediate, and minor—and a schedule of these categories has been drawn up. This schedule is so fantastically absurd that one is tempted to think it might have been drawn up by a hospital porter.

"For instance, the aspiration of a cerebral cyst is called a minor operation and is put in the same category as the removal of a sebaceous cyst; acute appendicitis is a major operation while adenoma of the thyroid is an intermediate one. The more stouthearted of us just ignore the whole thing, but we shall, I expect, be called to account by the bureaucrats one of these days and that will be our opportunity to tell them, as man to man, what we really think of them. It is this interference with one's freedom that one resents most of all—that, and the fact that the interferences are inflicted upon us because they (our Socialist Masters) are unwilling to trust the members of a learned and noble profession to behave decently.

"I could go on like this all night but must not weary you so we will pass to the next heading.

"The Effect of the N. H. S. upon the General Practitioner (G. P.)

"The G. P. has lost his joy and his interest in his work and is becoming not much more than a sorting clerk. Many of them are already facing economic ruin, particularly the G. P.'s in the rural areas.

"As is inevitable under any Socialist Scheme, there is no reward for skill, energy and enterprise—payment is on a flat rate and the dullard and the laggard get the same scale of remuneration as the prodigy. The G. P.'s are already worked to death and they have not so far had any epidemic to deal with—the Lord only knows what will happen if and when, for instance, a severe influenza epidemic comes along. My G. P. friends are now, without exception, unhappy men—pride in their job is waning and, most significant sign of all, I know of none who are bringing up their sons to follow in father's footsteps, as happened so very often in the past.

"In the old days, the essential characteristic of the man who went in for medicine was that he was an individualist—a man who intended to stand on his own two feet, and was ready to stand or fall by the success or otherwise of his own endeavours.

He expected, and got, his due reward for what he put into his job—he was answerable only to his own conscience and to his patients. Now the State has become his master and he can no longer plough his own furrow. The result of this will be, I am sure, that there will be an entirely different type of man going in for medicine—our future doctors will be small-minded little men with civil service mentalities and their main concerns will be keeping on the right side of their administrative superiors, the correct filling of forms, watching the clock, and passing the buck.

"This section, as is inevitable, must consist largely of an indictment of Socialism and its dismal doctrines. We have now had nearly four years of Socialism and it has brought our country to the brink of ruin, from every point of view—spiritually morally, and economically. The average not-very-intelligent-but-fundamentally-decent working man has been debauched and emasculated by this Government of ours. Formerly he was willing to have only what he paid for and to pay for what he had. Now he looks to the all-powerful State to provide him with all his needs—he does not think he ought to have to work for them.

"The possession of low cunning has become more important and more profitable than Character. A slick but unscrupulous intelligence will take a man to the top more easily and more certainly than will honest toil and dogged perseverance. Our ordinary man in the street seems incapable of appreciating the obvious truth that Socialism leads inevitably to Communism, which is its logical conclusion. And he seems incapable of realizing that the Nationalization and the class hatred

which our Socialists spend their time preaching and practicing are the two main props of Communism. The National Health Service is presided over by a crypto-Communist. He has taken such powers to himself as to make an absolute Dictator over all the medical services and all the medical personnel in the country. How can one feel anything but apprehension when one knows that such a creature is at the head?

"I am afraid that this letter is very long, very rambling and somewhat incoherent. I must ask you to forgive that. As you will appreciate, however, your request came to one who feels strongly in these matters and I have been moved to state my views to you without inhibitions.

"Any statements that you may have heard that there has been a change of attitude towards the N. H. S. by the medical profession of this country are, quite certainly, deliberate falsehoods and have probably been issued by the propaganda departments of Left Wing organizations. If your Government should seek to inflict upon you a National Health Service that even remotely resembles ours, then I would repeat to you the famous advice of Mr. Punch to those about to be married—'Don't!'

"I do not know what you intend to do with this verbose effusion, but I hope it will serve some purpose in showing you that there is at least one member of the British Medical profession who is willing to state his views fearlessly, and I pray it may perhaps in a very small way serve as a warning to some members of the American medical profession of the pitfalls and calamities to be avoided."

H. A. H. HARRIS
F. R. C. S.

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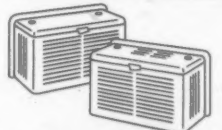
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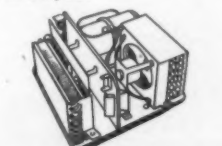
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Simplifying the Selection of Air Conditioning Coils

This is Part 2 of a two-part article. Part 1 was published in the April 18 issue.

Part 1 discussed the factors and variables in estimating the cooling load, and the material in this issue covers coil selection methods.

By D. D. Wile, Chief Engineer, Refrigeration Engineering, Inc., Los Angeles

Direct-Expansion Coils

The total capacity and the sensible heat ratio of direct-expansion coils depend upon:

1. The entering wet and dry-bulb temperatures.
2. The refrigerant temperature.
3. The coil depth (number of rows).
4. Air velocity.

Table 7—Rules of Thumb

6 ROWS	W.B. Temp.	69° Entering Wet Bulb Temperature									
		1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5
400	40	46.8	47.3	47.8	48.3	48.8	49.3	49.8	50.3	50.8	51.3
400	45	47.8	48.3	48.8	49.3	49.8	50.3	50.8	51.3	51.8	52.3
400	50	48.8	49.3	49.8	50.3	50.8	51.3	51.8	52.3	52.8	53.3
400	55	49.8	50.3	50.8	51.3	51.8	52.3	52.8	53.3	53.8	54.3
400	60	50.8	51.3	51.8	52.3	52.8	53.3	53.8	54.3	54.8	55.3
400	65	51.8	52.3	52.8	53.3	53.8	54.3	54.8	55.3	55.8	56.3
400	70	52.8	53.3	53.8	54.3	54.8	55.3	55.8	56.3	56.8	57.3
400	75	53.8	54.3	54.8	55.3	55.8	56.3	56.8	57.3	57.8	58.3
400	80	54.8	55.3	55.8	56.3	56.8	57.3	57.8	58.3	58.8	59.3
400	85	55.8	56.3	56.8	57.3	57.8	58.3	58.8	59.3	59.8	60.3
400	90	56.8	57.3	57.8	58.3	58.8	59.3	59.8	60.3	60.8	61.3
400	95	57.8	58.3	58.8	59.3	59.8	60.3	60.8	61.3	61.8	62.3
400	100	58.8	59.3	59.8	60.3	60.8	61.3	61.8	62.3	62.8	63.3

Fig. 7—This is a portion of a complete direct-expansion rating table covering the range from 63° to 79° wet-bulb temperature and for 2 to 8-row coil depths.

Fig. 7 shows a small portion of a coil selection table. The complete table covers the range from 63° to 79° wet-bulb temperature, and from 2 to 8-row coil depths. By the use of this table coils may be selected to meet any normal condition of operation.

Water Coils

It is well known that the performance of a water coil depends upon the logarithmic temperature difference between the water and air temperatures, but this applies only to cooling

Table 6—Water Flow Rate

G.p.m. per Circuit	5	1.0	1.5	2.0	2.5	3	4	5	6	8
77	1.00	1.12	1.20	1.25	1.30	1.35	1.40	1.43	1.47	

Multiply ratings by these factors

with dehumidification. When cooling and dehumidifying take place the log mean temperature difference cannot be applied directly and some method of approximation has been necessary. Many of the methods used in the past have been less than acceptably accurate and indicated only the total heat capacity without reference to sensible and latent heat capacities.

Water-coil performance, including sensible and latent heat capacities may be determined from the direct-expansion table by using the average of the entering and leaving water temperature in place of the refrigerant temperature.

The small error from this method is, fortunately, in the form of a factor of safety. At a water velocity of 1.3 ft. per second, which corresponds to 1 g.p.m. per tube for $\frac{1}{2}$ -in. o.d. tubes, the heat transfer rate is the same as for evaporating "Freon."

For other velocities the values from the table are modified according to Table 6. From this table it is evident that low water velocities should be avoided by proper arrangement of the coil circuits. It is generally desirable to maintain a flow rate of 3 or 4 g.p.m. per tube.

EXAMPLE

Entering wet-bulb temperature 69°
Entering dry-bulb temperature 84°
Air velocity through coil... 500 f.p.m.

Per Cent Relative Humidity

	70	72	74	76	78	80	82	84	86	88	90	92	94	96	98	100
40	55.8	57.4	59.0	60.5	62.0	63.5	65.1	66.7	68.2	69.7	71.2	72.8	74.4	76.0	77.6	79.2
45	57.2	58.8	60.4	62.0	63.6	65.2	66.8	68.4	69.9	71.5	73.1	74.7	76.4	78.1	79.7	81.4
50	58.5	60.2	61.8	63.4	65.1	66.8	68.4	70.0	71.6	73.2	74.9	76.6	78.3	80.0	81.7	83.4
55	59.8	61.5	63.1	64.8	66.6	68.3	69.9	71.5	73.2	74.9	76.7	78.4	80.1	81.8	83.5	85.3
60	61.0	62.7	64.4	66.2	68.0	69.7	71.3	73.0	74.8	76.6	78.4	80.1	81.9	83.6	85.3	87.1

Coil depth 6 rows
Average water temperature 50°
Water velocity through tubes 2.5 g.p.m. per tube

From Fig. 7 the rating under the above conditions, using the average water temperature of 50° as the refrigerant temperature, is 1.3 tons per sq. ft. of face area but this would apply only to a water velocity of 1 g.p.m. per tube.

Table No. 8 gives a multiplier of 1.25 for 2.5 g.p.m. per tube and thus the true capacity will be 1.3 tons times 1.25 equals 1.63 tons per sq. ft. of face area.

Referring again to Fig. 7 note that 1.63 tons per sq. ft. corresponds to a refrigerant temperature of 45°. Thus, the water coil with an average water temperature of 50° will perform the same as a direct-expansion coil with refrigerant temperature at 45°.

The sensible heat ratio, leaving wet-bulb temperature and leaving dry-bulb temperature will then correspond to a direct-expansion coil operating at 45° refrigerant temperature.

It should be noted that a further increase in water velocity would be handled the same as a decrease in the average water temperature.

Rules of Thumb

Selection of the proper air conditioning coil can be greatly simplified by the use of "rules of thumb" such as listed in Table 7. Referring to the table:

I. Air velocity seldom varies greatly from 500 f.p.m. Below that velocity the coil capacity falls off rapidly. At velocities too greatly above 500 f.p.m. noise may become a problem and there is the possibility of blowing water off the coil.

II. The amount of air circulated per ton of refrigeration load may vary considerably with different types of jobs. Good practice is between 300 and 400 c.f.m. per ton.

With 4-row coils (High Sensible Heat Ratio) 500 f.p.m. will work out to about 400 c.f.m. per ton. With 6-row coils 500 f.p.m. will work out to more nearly 300 c.f.m. per ton.

III. Evaporating temperature may

Table No. 5—Relative Humidity Table

Dry Bulb Temperature °F.	Wet Bulb Temperatures °F.															
	70	72	74	76	78	80	82	84	86	88	90	92	94	96	98	100
40	55.8	57.4	59.0	60.5	62.0	63.5	65.1	66.7	68.2	69.7	71.2	72.8	74.4	76.0	77.6	79.2
45	57.2	58.8	60.4	62.0	63.6	65.2	66.8	68.4	69.9	71.5	73.1	74.7	76.4	78.1	79.7	81.4
50	58.5	60.2	61.8	63.4	65.1	66.8	68.4	70.0	71.6	73.2	74.9	76.6	78.3	80.0	81.7	83.4
55	59.8	61.5	63.1	64.8	66.6	68.3	69.9	71.5	73.2	74.9	76.7	78.4	80.1	81.8	83.5	85.3
60	61.0	62.7	64.4	66.2	68.0	69.7	71.3	73.0	74.8	76.6	78.4	80.1	81.9	83.6	85.3	87.1

vary widely but for direct-expansion coils it will generally fall close to the range of 40° to 45° F. Below 40°, compressor capacity and efficiency will be sacrificed, while at greatly above 45° the sensible heat ratio may be too high.

IV. In air conditioning, do not expect one temperature and humidity to please everyone. This is no different from the problem in heating. Therefore, the temperature and humidity maintained in the air conditioned space is a compromise based upon experience. The values shown in Table 5 have proven acceptable.

V. The "rules of thumb" governing coil depth may vary somewhat with different individuals. For instance, in the Los Angeles area there are some engineers who almost invariably use 4-row coils and others who generally use 6-row coils.

Fig. 7—Coil Selection Table

RULES OF THUMB

I	COIL FACE VELOCITY 500 FPM
II	AIR QUANTITY 300 to 400 CFM PER TON
III	EVAPORATING TEMPERATURE 40° to 45°
IV	INSIDE DESIGN CONDITIONS
	HUMID CLIMATE 80° DB, 50% RH
	HOT DRY CLIMATE 80° DB, 40% RH
	COOL DRY CLIMATE 78° DB, 45% RH
V	COIL DEPTH CLIMATE LATENT LOAD
	4 ROW DRY LOW
	6 ROW DRY HIGH
	8 ROW HUMID LOW
	8 ROW HUMID HIGH

Now, why is it that both may have successful jobs? It is simply because the fellow with the 4-row coils is working with low face velocity and low suction pressure. Also most of his jobs are for stores and types of jobs where the latent load is low. For high latent loads he, too, would go to thicker coils.

Acknowledgment: In the preparation of this paper the author has, with permission, drawn freely upon the "ACRMA Equipment Standards—1946 Edition," and the "ACRMA Application Engineering Standards for Air Conditioning for Comfort," published and copyrighted by the Air Conditioning & Refrigeration Machinery Association, Southern Building, Washington 5, D. C.

Table No. 8—Standard Direct Expansion Coils, 6 Rows

Coil Number	Nominal Rating	Tons	Face Area Sq. Ft.	Rated at 67° W. B. Entering Air Temperature										500 F.p.m. Face Velocity				
				40° "Freon-12" Evaporating Temperature										1.75 Tons per Sq. Ft. of Face Area				
AC602	AC603	AC604	AC605	AC606	AC607	AC608	AC609	AC610	AC611	AC612	AC613	AC614	AC615	AC616	AC617	AC618	AC619	AC620
1.4	2.1	2.8	4.0	5.8	7.7	10.8	14.0	17.7	21.4	27.0	35.0	44.0	54.0	64.0	74.0	84.0	94.0	104.0
8	12	16	23	33	44	62	80	101	122	154	20	26	32	39	46	54	62	70
4	6	8	11	15	20	28	36	45	54	63	72	81	90	100	110	120	130	140
14	22	30	42	58	78	108	144	188	238	298	378	478	588	708	838	978	1128	1288
11	17	23	32	44	59	81	109	141	179	227	285	353	431	519	617	725	843	971
17	25	34	47	64	86	118	158	208	268	338	418	508	608	718	838	968	1108	1258
19½	27½	36	50	68	92	126	168	220	282	354	436	528	630	742	864	996	1138	1290
10	15	20	28	38	50	66	88	116	150	190	238	296	364	442	530	628	736	854
1%	1½	2%	3%	4%	5%	7%	9%	12%	16%	20%	25%	30%	36%	42%	50%	58%	68%	78%
1%	1½	2%	3%	4%	5%	7%	9%	12%	16%	20%	25%	30%	36%	42%	50%	58%	68%	78%
2	3	4	6	8	11	15	20	26	33	41	50	60	70	82	94	108	122	138
1%	1½	2%	3%	4%	5%	7%	9%	12%	16%	20%	25%	30%	36%	42%	50%	58%	68%	78%
5a	5a	5a	5a	5a	5a	5a	5a	5a	5a	5a	5a	5a	5a	5a	5a	5a	5a	5a

Note: (2) indicates two distributors and two headers are used.

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Larkin refrigeration products, made by the originators of Cross Fin Coils, combine industrial beauty with flawless performance. Humi-Temp Forced Convection Units—Bare Tube and Zinc Fused Steel Plate Coils—Evaporative Condensers—Air Conditioning Units—Instantaneous Water Coolers—and other top-ranking factors in industrial and commercial refrigeration.



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Speed installation with Kno-Draft the completely adjustable air diffusers

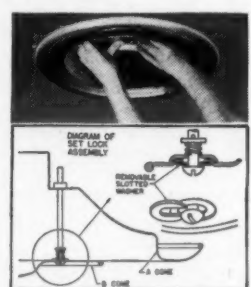
Helps get job OK's faster, too!

Kno-Draft's adjustment features not only help you get off the job faster—with a well satisfied OK—but they eliminate the tough job of figuring everything about the air movement in advance. If people or partitions are relocated while the job is in progress, you can adjust to the changes in a jiffy. A screwdriver adjusts the three suspension bolts for any angle of air discharge from horizontal to vertical (Fig. 3). Balancing is fast and easy. The single annular air stream permits immediate and accurate velometer reading (Fig. 4). A twist of the wrist regulates the air volume instantly (Fig. 5).

Kno-Draft self-contained inner unit (Fig. 1) and the Type HD set-lock assembly (Fig. 2) cut installation time in half, according to contractors who have used them for the first time. They're especially handy where ceilings already exist. Then it's a simple job to remove the inner assembly, attach the outer cone to collar or duct and reassemble the diffuser. The outer cone slips over the suspension bolts and is secured by a slotted washer which keeps the spring-loaded catch in compression (Fig. 2).



(Fig. 1) Self contained inner unit



(Fig. 2) Type HD set-lock assembly



(Fig. 3) Air Direction Adjustment



(Fig. 4) Balancing



(Fig. 5) Air Volume Adjustment

Send for FREE handbook on air diffusion. It contains up-to-date data that simplifies the selection and application of Kno-Draft Diffusers. It shows how you can get top efficiency from an air conditioning system. Please write Department A-10.

W. B. CONNOR ENGINEERING CORP.

Air Diffusion • Air Purification • Air Recovery

112 East 32nd Street

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IN CANADA: Douglas Engineering Co., Ltd., 190 Murray Street, Montreal 3, P.Q.

Individual-Control Air Cooling Planned for Carolina Hospital

GREENWOOD, S. C.—Announcement has been made that air conditioning equipment providing individual control for patients' rooms will be installed in Greenwood's Self Memorial hospital now under construction. The 179-bed hospital is being constructed by the Self Foundation, which was set up by James C. Self, for many years one of the South's outstanding business and civic leaders.

Georgia Heat Pump Places Source Coil Below Surface of Lake

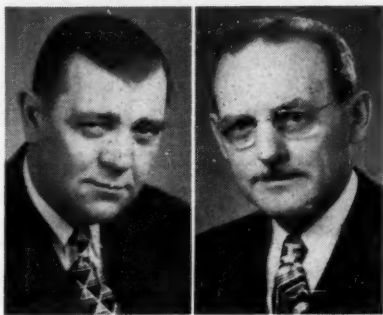
ROSSVILLE, Ga.—A heat pump with its source coil 4 ft. below the surface of a spring fed lake is being installed in a new doctor's clinic building here.

This is the first commercial heat pump installation in the Chattanooga area to attempt to draw heat from and exhaust it to a body of water.

"Mechanical source for the reverse, heating in winter and cooling in summer, cycles of the pump, will be a 30-ft. coil at a 4-ft. depth in the 8-ft. deep lake," a report by the Electric League of Chattanooga states.

"Year-round water temperature statistics are not available, but this lake should furnish an ideal test for the capacities of the pump.

District Factory Agents



JACK DENHAM

JESS KAISER

Schaefer Names Kaiser, Denham To Field Posts

MINNEAPOLIS—Jess Kaiser, former appliance sales manager at Milwaukee for Graybar Electric Co., and Jack Denham, district sales manager for Baldwin-Hill Co. since 1946, have been appointed district factory representatives of Schaefer, Inc.

Kaiser's territory includes Michigan, Ohio, Indiana, and Kentucky. He will work with distributors and their dealers on Pakaway home freezer sales and promotion exclusively.

Before joining Graybar, Kaiser was associated with Westinghouse Electric Supply Co., F. L. Jacobs Co., and Clark Supply Co. His headquarters will be the Schaefer branch office at 132 The Old Arcade, Cleveland.

Denham, who was appointed Schaefer representative in Ohio, was salesman and divisional manager for Sherwin-Williams Co. during 15 pre-war years. He was with Jack & Heintz in Cleveland during the war.

Liquid Carbonic Lets Contract for Servicing Ice Cream Cabinet Line

CHICAGO—Refrigeration Maintenance Corp. here has been appointed by Liquid Carbonic Co. to handle nationally the repairs on all Liquid Carbonic ice cream cabinets, Albert G. Well of the former firm has announced.

Complete shop facilities for the reconditioning of this equipment including evaporator and condensing unit replacements, condensing unit rebuilding, and cabinet repairs have been set up at 321 Grand Ave. here, Well said.

"The same reconditioning procedure is being used as that followed previously by Liquid Carbonic," Well stated. "A full one-year warranty is furnished."

"Evaporator replacements are supplied by the factory so that the original manufacturing procedure can be maintained. Flat charges have been set up for the reoperation of all cabinets from two to 12 hole."

"The original cabinets as received in the reoperation department are rebuilt, refinished, and returned to the user."



USE
CHICAGO SEALS
and
VALVE PLATES



Adequate Cost-Records Help Service Firm Operate Profitably, Reed Tells RSES

MONTREAL, Que., Can.—Considering "Refrigeration Service as a Business," Paul Reed, educational director of the Refrigeration Service Engineers Society, breaks the subject down into six main classifications:

1. Knowledge of the business.
2. Ethics.
3. Craftsmanship.
4. Appearance.
5. Service itself.
6. Management.

In discussing the subject before the recent tenth annual educational conference of the Interprovincial Association of RSES here, Reed emphasized that "knowledge is a necessity and it has to be dug out for yourself."

"Knowledge is not an assortment of unrelated facts. One may have pigeon-holes of knowledge, but they're all held together by 'know-why'—that is, the principles or theory of refrigeration."

"We learn from others. Some of us oldtimers set too much store by experience. It's certainly valuable, but it's learning things the hard way."

"Ethics," he continued, "is a matter that's hard to define. You might say that honesty is simply good business. The customer who gets skinned doesn't like to come back to the same place."

On the subject of craftsmanship, Reed pointed out how "modern production and machining methods have greatly improved products, but many workmen in factories are now less conscious of the quality of their work. In the past few months, however, the quality of workmanship has begun to come back up."

Refrigeration servicemen, he said, have always worked as individual craftsmen, and many of them have excelled in this part of their business.

"Appearance doesn't mean a big front, but the serviceman must retain pride in the looks of the job, the appearance of his shop, and his own personal appearance," Reed declared.

"As for 'service,' the first contact a customer has is usually with the dispatcher. The dispatcher has to be patient and a diplomat. Courtesy should be his first principle. If the dispatcher, for example, doesn't know when a serviceman can answer the call, he should be honest with the customer, especially now when the customer is again the boss."

And on the last subject Reed listed—management—he opined, "I don't think you can call it a business unless it's properly managed."

Reed remarked that "we all go in business to make a profit," but there

are several kinds of profit.

The first is "gross profit" from which have to be subtracted such things as rent, telephone costs, and the like which constitute "overhead" and can't be allocated to any one job. This leaves "profit before taxes" and after taxes comes finally the real "net profit," Reed explained.

"One of the most important things in managing a service business is the keeping of adequate, accurate records," he emphasized.

"Keeping good cost records will show you where your most profitable operations may lie, and they will also help you in convincing bankers that you should get a loan, if you should ever decide you want one. Bankers, by the way, are good men to know. They're usually pretty good advisers on business matters."

"In figuring out your operating costs don't forget to include your own salary," he cautioned. "And you should set aside 'reserves' for (1) lean times, (2) free service, and (3) depreciation of equipment."

"Whatever you do, be sure to have a good accountant and set up a good bookkeeping system. Have a budget and follow it. The first six months under a budget may be the hardest, but after that it will be easier."

"The businessman must be a realist. Don't kid yourself. Face the cold hard facts. If he does, the businessman will have less inclination to cut his prices. Remember, you have to make a profit to stay in business."

SOME TERRITORY NOW AVAILABLE



The THESCO complete line includes expandit cases and walkins that grow with the merchant's business.

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NEED COLD PLATES? Call DEAN!!!

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DEAN PRODUCTS, INC.

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GRAND RAPIDS BRASS presents . . .

Packaged HARDWARE

COMPLETE WITH SCREWS

EASY TO STOCK . . . SIMPLE TO INSTALL



MR. JOBBER!

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MR. SERVICEMAN!

Replacement hardware now available complete with chromium plated brass screws, neatly packaged for your convenience. Remember there's 40% profit for you.



SUPERIOR IN QUALITY
matchless in performance

THE LOCK WITH THE LIVING ACTION
WHEN IT TRIPS — IT GRIPS.

Hinges . . . for lifetime service

Hadfield, Ex-Head of L. A. Contractors, Dies

LOS ANGELES—The death of Frank Stanley Hadfield, prominent in the refrigeration industry in southern California for more than 25 years, occurred March 14, 1949, as the result of a heart attack. He was 67 years old.

Coming to California in 1920, he became associated with and later general manager of the Gay Engineering Corp. of Los Angeles until 1938. In 1938 he organized and served as president of the Associated Refrigerating Engineers, also of Los Angeles, retiring from active business duties in 1945. He was also past vice president of the Refrigeration Contractors Association, Los Angeles.

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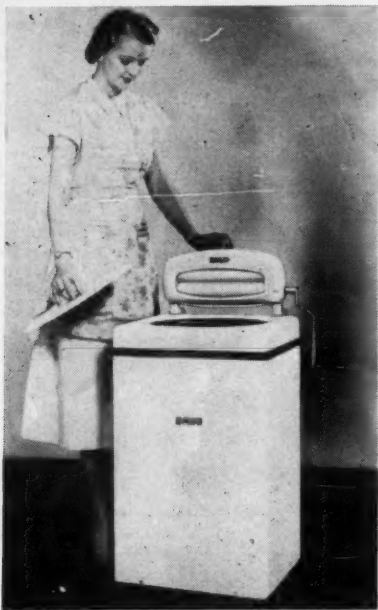
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COMPANY

GRAND RAPIDS 4, MICHIGAN

A DIVISION OF
CRAMPTON MANUFACTURING COMPANY



What's New



Howard Washer Designed For Use In Small Space

CLEVELAND—A low cost, apartment-type washer with a capacity of 5 to 7 lbs. of dry wash is being made available for national distribution by the Cleveland Home Equipment Corp. here.

The machine, traded under the name Howard, retails for \$69.95 including power operated drain pump and removable, cast aluminum wringer with 2-in. rolls.

Designed for use in limited space, the Howard washer is 29 in. high and 18 in. square. It has a flat top that can be used as utility work space, the manufacturer said.

Louver-type agitators that are claimed to eliminate lost buttons and torn clothing are featured. Even very soiled clothing may be laundered in as little as 10 to 15 minutes, according to the manufacturer.

Exterior is of white, baked enamel

while the tub is of rustproof, stain-proof, porcelainized enamel. Weighing 96 lbs. the washer is of all steel construction. It has a General Electric motor as well as Goodrich rubber rolls.

National consumer advertising, a dealer mat service, and point of sale aids are being planned by the manufacturer.

Improved by Top Coiling Portable Case Performance

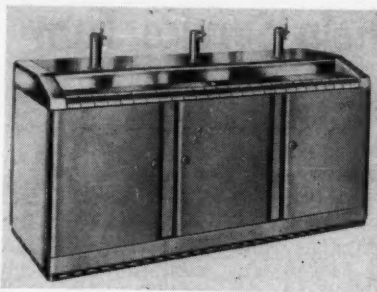


MINNEAPOLIS—Schaefer, Inc., here has announced development of a portable, open-type, package merchandising-display cabinet for frozen food retailers.

Designated as model O-6, the cabinet is equipped with casters, and has a white enameled steel superstructure with product-price strips and either Schaefer four-color Kodachrome or 3-dimension pictures.

A method of top coiling is claimed to enable the cabinet to function "extremely well in even more than moderate room temperatures."

The cabinet has 6 cu. ft. of usable space, and will accommodate 222 standard frozen food packages; it holds 295 pint or 139 quart ice cream packages. It is powered by a hermetically-sealed condensing unit, according to the manufacturer.



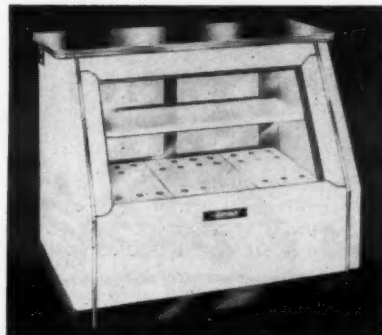
Keg Cooler-Beer Dispenser Has Pushbutton Latches

HUDSON, Wis.—United Refrigerator Co. has announced that it is in production on a new keg cooler and beer dispenser of all-steel construction with stainless steel top.

Offered in both self-contained and remote units in two and three-keg sizes, the new Koolmaster is designed with no protruding handles and hinges. Instead it has pushbutton door latches built flush with the cabinet.

United also recently announced a new ice cube maker and is readying other units for production this spring, the company said. All hermetically sealed condensing units on the company's products are now covered by a 5-year warranty at no additional cost to the purchaser, it added.

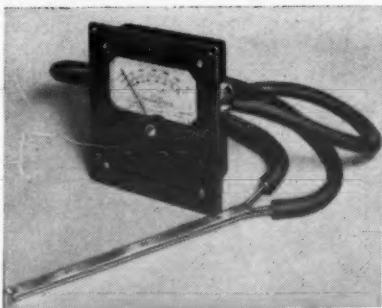
Counter-High Display Case Aids Small Grocer, Baker



NEW YORK CITY—Coldin Cabinet Co., Inc. here has announced that it is now manufacturing a counter height, Formica top, all porcelain display-storage-service refrigerated case for the small grocer or baker.

The case is made in 4, 6, 8, and 10-ft. lengths for either remote or self-contained installations, the manufacturer said.

Velometer Designed for Permanent Installation



CHICAGO—Illinois Testing Laboratories, Inc., manufacturer of velometers—air velocity meters for ventilating and air conditioning uses—has announced the development of a new flush-mounted velometer for permanent installation.

This new velometer unit is particularly suitable for permanent installation with permanent jets installed in ducts for continuous indication of air velocities, the manufacturer said.

Minimum range is 0-1,000 f.p.m.; dimensions are 7 in. by 6 1/4 in. by 2 1/2 in. One of the velometer's prime advantages is the fact that there is practically a zero pressure drop through the instrument.

WANTED Refrigeration Engineer

Must have at least 10 years experience in manufacturing and designing, and have a good technical background.

Exceptional opportunity with well-known manufacturer located in Ohio. Apply by letter to Box No. 3160 in care of this publication.

Indoor Incinerator Taps To 6-In. Furnace Flue



HUNTINGTON, Ind.—A new and improved indoor home incinerator has been announced recently by the Majestic Co. here.

Listed as the model No. 2, it is a double-walled cylindrical metal unit fitted with a welded steel rod inner grating and cast iron swinging top and ash clean-out door. It taps to any furnace flue 6 in. or larger.

By means of a grate-baffle, draft is induced through the top thus causing a down-draft which both dries and super-charges the burning of the contents.

Operating instructions call for all household paper, and other combustible refuse—including both wet and dry garbage—to be dumped into the unit just as it collects. When so filled to its 2 bushel capacity a lighted match dropped in the top is all that is required.

On successive burning, any con-

tents remaining from previous firings are reduced to fine ash. Ash only has to be removed occasionally.

Finished in brown-bronze and measuring only 23 in. in diameter and 32 in. high, the unit can be installed in basement or utility room. It lists for \$39.95 plus small installation.

Pipe Line Strainers Have Large Screen Areas

CHICAGO—A new series of pipe line strainers have been placed on the market by Maid-O-Mist, Inc., 3217 N. Pulaski Rd. here.

Made in three sizes, with 3/4 in. I.P. tap inlet and outlet, for use on water, air, or gas lines, the strainers feature large screen areas to remove dirt, rust, scale, and other foreign matter without effecting any noticeable drop in line pressure.

Without disturbing any pipe connections, the 80-mesh monel woven wire screens can be quickly removed for cleaning. There are no internal threads to rust or freeze and being constructed entirely of non-ferrous metals are highly corrosion resistant.

The screen in the No. 47 strainer (for air or gas only) comes packed with glass fiber to catch any condensation from the air or gas. This condensation is then quickly blown off simply by turning the wheel-handle needle valve at the bottom of the strainer. Screens of other mesh can be furnished on application.



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DISPLAY CABINETS
QUICKFREEZERS • WALK-INS
BEVERAGE COOLERS • ICE MAKERS**

Write **VICTOR PRODUCTS CORP., HAGERSTOWN, MD.**

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The PIONEER FLUID DEHYDRANT

Goodbye to

ALL MOISTURE

IN ANY REFRIGERATING SYSTEM

THE MOVING DEHYDRANT

HIGH-SIDE CHEMICALS CO.

10 COLFAX AVE. CLIFTON, N. J.

ALSO MAKERS OF

TRACE*

REFRIGERANT LEAK DETECTOR

Pictured above is THAWZONE being added to the refrigerant via the evaporator. If desired, it can be added to other parts of the system also, such as the crankcase, liquid line, etc. But, wherever you inject THAWZONE, it travels throughout the system, searching out and destroying every trace of moisture chemically.

Ask yourself this: Can the ordinary fixed dehydrator do a 100% job in getting rid of moisture? Remember that moisture becomes trapped in out-of-the-way places and cannot move around. For this reason, the dehydrant must go to the moisture... possible only with a liquid that mixes and travels with the refrigerant. The answer? THAWZONE, of course!

Your wholesaler carries THAWZONE

*TRADE MARK REG. U.S. PAT. OFF.

BENBAR VERTICAL FREEZERS

Better

FOR YOU!
(more profits!)

Better

FOR YOUR CUSTOMERS!
(more satisfaction!)

Better

ON EVERY COUNT!
(more features!)

Why not sell the kind of freezer that people want—the Benbar vertical! Thousands now in use by families that want frozen foods to be easy to reach!

- Four inch Fiberglas insulation—vapor sealed at all joints.
- Panelite covered door jamba—frost breaking lock.
- Immediate delivery—optional 5 year warranty.

TWO STANDARD SIZES — 14 cu. ft. — 17 cu. ft.

Rugged, two-cylinder, hermetically-sealed condensing unit with trouble-free capillary system...two-step door construction...baked enamel finish on interior and exterior!

Write for complete information and prices on the Benbar Vertical Food Freezer and Benbar cabinets, coolers, and horizontal models!

Write for more information and prices on Benbar products. Distributorships available!

AUGUST G. BARKOW MANUFACTURING CO.

2723 S. 31st Street • Milwaukee 7, Wisconsin

The KEY to AIR CONDITIONING

One of a series from

by James J. LaSalvia

Readers who have any questions regarding the application of air conditioning are invited to write to Mr. LaSalvia, the author of this series, who will be pleased to furnish a complete and detailed answer free of charge. This is another of the services provided by the News.

Piping Refrigerant, Water, Steam (Cont.)

A CLOSED CIRCUIT WATER SYSTEM

A closed circuit water system is shown by Fig. 13; this is typical as used in air conditioning systems and includes water-cooling coils, water cooler, and circulating pump.

EXAMPLE

Given a closed circuit system as shown in Fig. 13, where the pump is to circulate 300 g.p.m., and supplying 150 g.p.m. to each of the two water coils:

- The friction in the water cooler is 6 ft.
- The friction in each water coil is 8 ft.
- The piping length from A to B is 8 ft.
- The piping length from H to G is 32 ft.
- The piping length from G to F is 10 ft.
- The piping length from D to E is 10 ft.
- The piping length from C to D is 40 ft.

- a. What are the sizes of various piping?
- b. What is the total pumping head of the pump and size of pump motor required?

1 5-in. 90° elbow, refer to Table 6, is 18 ft. of equivalent length of pipe.	18 ft. x .08 =	1.4 ft.
Line A to B, 5 in., 8 ft. long,	8 ft. x .08 =	.6 ft.
1 5-in. gate valve	= 6.5 ft. x .08 =	.5 ft.
1 5-in. 90° elbow	= 18 ft. x .08 =	1.4 ft.
1 5-in. check valve	= 52.8 ft. x .08 =	4.2 ft.
1 5-in. gate valve	= 6.5 ft. x .08 =	.5 ft.
Line C to D, 5 in., 40 ft. long,	40 ft. x .08 =	3.2 ft.
1 2½-in. tee	= 17.6 ft. x .26 =	4.6 ft.
Line D to E, 2½ in., 10 ft. long	= 10 ft. x .26 =	2.6 ft.
1 2½-in. tee	= 17.6 ft. x .26 =	4.6 ft.
1 2½-in. globe valve	= 29.3 ft. x .26 =	7.5 ft.
1 2½-in. 90° elbow	= 11 ft. x .26 =	2.9 ft.
Friction through water coil (one coil only)	=	8.0 ft.
Line F to G, 2½ in., 10 ft. long,	= 10 ft. x .26 =	2.6 ft.
1 2½-in. gate valve	= 3.3 ft. x .26 =	.9 ft.
2 2½-in. 90° elbows	= 11 ft. x .26 x 2 =	5.8 ft.
1 2½-in. tee	= 17.6 ft. x .26 =	4.6 ft.
Line H to G, 5 in., 32 ft. long,	32 ft. x .08 =	2.6 ft.
1 5-in. 90° elbow	= 18 ft. x .08 =	1.4 ft.
1 5-in. gate valve	= 6.5 ft. x .08 =	.5 ft.
1 5-in. 90° elbow	= 18 ft. x .06 =	1.4 ft.
Friction through water cooler	=	6.0 ft.
Total friction head	=	67.8 ft.

The total pumping head is 67.8 ft.

$$\text{Hp. of pump motor} = \frac{500 \text{ g.p.m.} \times 67.8 \text{ ft. head} \times 1}{3,960 \times 75\% \times 80\%} = 14.2 \text{ hp.}$$

Table 8—Flow of Water In House Service Pipes

Condition Of Discharge	Pressure In Main Lbs. per Sq. In.	Discharge In Cubic Feet per Minute									
		Nominal Internal Diameter of Pipe (in.)									
		½	¾	1	1½	2	3	4	6		
Through 35 ft. of service pipe.	30	1.10	1.92	3.01	6.13	16.58	33.84	88.16	173.85	444.63	
With no back pressure	40	1.27	2.22	3.48	7.08	19.14	38.50	101.80	200.75	513.42	
	50	1.42	2.48	3.89	7.92	21.40	43.04	113.82	224.44	574.02	
	60	1.56	2.71	4.26	8.67	23.44	47.15	124.68	245.87	628.81	
	75	1.74	3.03	4.77	9.70	26.21	52.71	139.39	274.89	703.03	
	100	2.01	3.50	5.50	11.20	30.27	60.87	160.96	317.41	811.79	
	130	2.29	3.99	6.28	12.77	34.51	69.40	183.52	361.91	925.58	
Through 100 ft. of service pipe.	30	0.66	1.16	1.84	3.78	10.40	21.30	58.19	118.13	317.23	
With no back pressure	40	0.77	1.34	2.12	4.36	12.01	24.59	67.19	136.41	366.30	
	50	0.86	1.50	2.37	4.88	13.43	27.50	75.13	152.51	409.54	
	60	0.94	1.65	2.60	5.34	14.71	30.12	82.30	167.07	448.63	
	75	1.05	1.84	2.91	5.97	16.45	33.68	92.01	186.78	501.59	
	100	1.22	2.13	3.36	6.90	18.99	38.89	106.24	215.68	579.18	
	130	1.39	2.42	3.83	7.86	21.66	44.34	121.14	245.91	660.36	
Through 100 ft. of service pipe.	30	0.55	0.96	1.52	3.11	8.57	17.55	47.90	97.17	260.56	
With 15 ft. vertical riser	40	0.66	1.15	1.81	3.72	10.24	20.95	57.20	116.01	311.09	
	50	0.75	1.31	2.06	4.24	11.67	23.87	65.18	132.20	354.49	
	60	0.83	1.45	2.29	4.70	12.94	26.48	72.28	146.61	393.13	
	75	0.94	1.64	2.59	5.32	14.64	29.96	81.79	165.90	444.85	
	100	1.10	1.92	3.02	6.21	17.10	35.00	95.55	193.82	519.72	
	130	1.26	2.20	3.48	7.14	19.66	40.23	109.82	222.75	597.31	
Through 100 ft. of service pipe.	30	0.44	0.77	1.22	2.50	6.80	14.11	38.63	78.54	211.54	
With 30 ft. vertical riser	40	0.55	0.97	1.53	3.15	8.68	17.79	48.68	98.98	266.59	
	50	0.65	1.14	1.79	3.69	10.16	20.82	56.98	115.87	312.08	
	60	0.73	1.28	2.02	4.15	11.45	23.47	64.22	130.59	351.73	
	75	0.84	1.47	2.32	4.77	13.15	26.95	73.76	149.99	403.98	
	100	1.00	1.74	2.75	5.65	15.58	31.93	87.38	177.67	478.55	
	130	1.15	2.02	3.19	6.55	18.07	37.02	101.33	206.04	554.96	

Use a 15-hp. motor as it is the next commercial size.

Therefore, the pump size is 500 g.p.m. at a 68-ft. head using a 15-hp. motor at 1,750 r.p.m.

While the main lines call for a 5-in. pipe, it would be good practice to make the suction side from water cooler to pump or line A to B, a 6-in. pipe and provide a reducer next to pump.

FLOW OF WATER IN HOUSE SERVICE PIPES

Flow of water in house service pipes is usually difficult to estimate to determine whether enough water can be had for condensing purposes, if compressor is to be installed. Table 8 can be used for such purposes by knowing the pressure of the water entering the premises. This pressure can be received from local water department or by installing pressure gauge at some convenient outlet in main near point of entrance to premises.

(To Be Continued)

Closed Circuit System

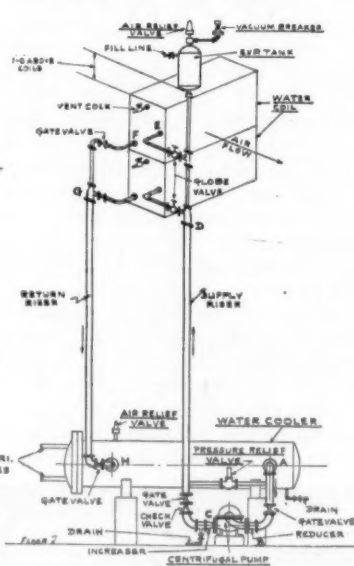
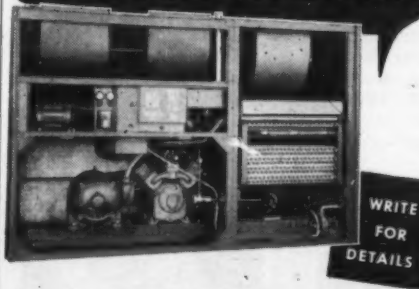


Fig. 13—A typical closed circuit water system employed in air conditioning is shown diagrammatically. In this system water cooled by a refrigeration unit is forced by a centrifugal pump up to water coils from whence it is returned to the water cooler.

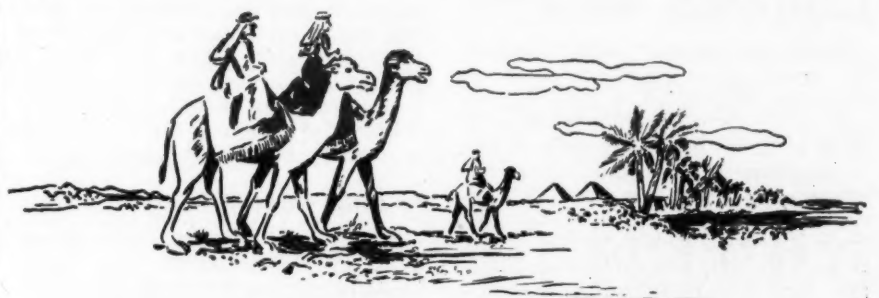
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ALLENTOWN, Pa. — Larson Supply Co. here, wholesale distributor of refrigeration, heating, and air conditioning supplies, has announced that it has moved to larger quarters at 310 Hanover Ave. It was formerly located at 25 N. 10th St.



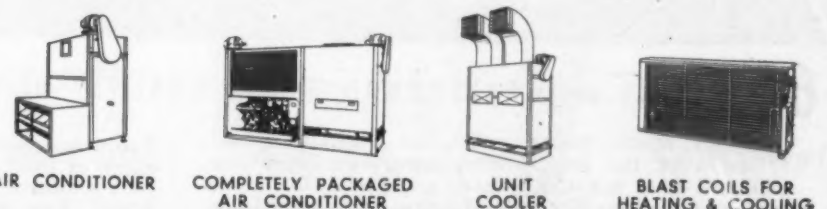
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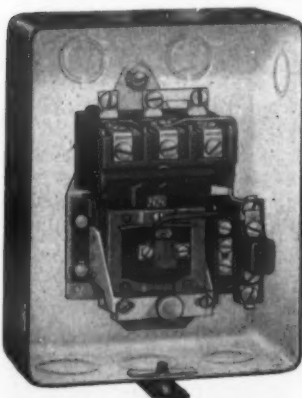
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QUALITY
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Intelligent Administration of Safety Codes Stressed as Important Factor for Success

By John C. Rehard, Chief Safety Engineer, City of Detroit

Some time ago the writer discussed the manner of drafting municipal codes, and something in the nature of a blueprint for such a procedure was suggested. Obviously, an ordinance governing the installation, maintenance, and operation of mechanical equipment is useless unless accompanied by suitable administrative provisions which provide for adequate enforcement.

To further the cause of uniformity and standardization of engineering requirements, it is always best, if possible, to adopt nationally recognized standard codes in their entirety. This practice eases the problem of drafting a municipal safety ordinance because the actual drafting of an adequate administrative article with provisions enabling the adoption of the standard is all that remains.

Fortunately, national standard codes are now developing into such a state of perfection that this procedure may become common practice. However, even when it becomes necessary to write an entire code without the benefits of nationally established standards, the administrative article is none the less important, since it is the one through which the "teeth" are inserted into the law.

Therefore, it is well to investigate thoroughly the necessary requirements for the administrative provisions of municipal safety code and to consider carefully just what results they may be expected to produce in the way of enforcement.

Coverage Clearly Defined

First, the purpose and scope of the proposed regulations must be carefully determined. It is very important that the equipment which is to be covered be clearly defined, and it is equally important that the equipment which is not to be governed be specifically exempted from coverage. Retroactive coverage is not generally advisable unless definite hazards are known to be existent. Even then, when repairs are made to existing equipment, it is possible that current provisions requiring safe operation of equipment will gradually eliminate the dangerous conditions.

The problem of knowing where the equipment which is to be governed is located then presents itself. A requirement should be included making necessary the securing of a permit for the installation of such new equipment or for the repairing of such existing equipment as comes under the ordinance provisions. The location, disposition, and other pertinent details should be indicated on the permit application.

Blueprints or drawings should be required where the equipment is rather large and/or complicated, and no permit should be issued without the approval of such plans by the enforcing agency. Otherwise, the data submitted on the permit appli-

cation should suffice for smaller and/or less complicated installations.

The first stage in the enforcement of the ordinance is then provided for by requiring inspection of the items covered by the permits. A fee commensurate with the cost of the services rendered should be required for the issuance of the permit. Perhaps it will be necessary to make periodic inspections of a portion or all of the equipment covered by the code, and another section would cover this point. Thus the second or control stage of enforcement will be set up.

Again, suitable fees to cover the costs of inspections will be necessary. A schedule of inspection fees should be established and based on the cost of periodic inspections. Such fees may be predicted upon an annual license or upon the individual inspections.

The inspections, whether initial or periodic, will necessitate the making of reports and the keeping of certain records, and it may be advisable to specify in the ordinance just what records are to be kept and how they are to be kept. It is also advantageous to prescribe the procedures for establishing the required fees for permits, licenses, and inspections, and for making alterations in the fee schedules to meet changing conditions.

Since violations of the law seem inevitable, provisions for the processing of violations and dealing with violators must be taken into account. To assure a maximum degree of public safety, it may be necessary to provide for the removal from service of equipment which, upon inspection, is found to be hazardous. Of course, it is necessary to include penalties for violators of the code and for failure to remedy hazardous conditions.

Settling Out of Court

A phase of administrative procedure and enforcement that sometimes is not satisfactorily dealt with or which is even left out completely is the settlement of disputes, concerning violations, within the enforcement agency and without referral to the courts. In large municipalities, especially, it appears rather foolish to clutter up the court dockets with arguments that stem from differences of opinion.

Logic and cold facts are the basis for sound municipal safety codes, but common horse sense in their application and enforcement is an absolute prerequisite to their satisfactory functioning. The inspector or other enforcement official entrusted with the administration of a safety code is no more perfect than the public with whom he deals, even though he is expected to know more about the ramifications of the law.

Therefore, when legitimate differences of opinion arise concerning application of the code, it is only logical to provide a means of settle-

ment other than taking the matter into court. One tried and very satisfactory method is to set up an ordinance provision for a Board of Appeals. This group should consist of a few individuals carefully selected from outside the enforcement agency and because of their fairness and ability.

Cases where there is a reasonable cause for misunderstanding may be taken before such a board for settlement and an agreement reached without court procedure. Of course, any rulings handed down by such a board would still be subject to review by the courts if all parties concerned be not satisfied.

Another administrative problem that has stirred up considerable discussion, both pro and con, in recent months is the licensing of contractors. Since it is a function of the safety code to see that safe work results, it does become necessary to more or less supervise the work of tradesmen. All possible means for the control of those doing work covered by a code should be thoroughly investigated. It is possible to eliminate unsafe and unsatisfactory work with a considerable force of governmental inspectors, but this system is bound to be costly.

Law-Abiding Contractors

Oppose High License Fee

The willful law breaker invariably tries to or does operate "under cover" as much as possible. One of the inevitable results of such operations is that no permits are requested for the equipment installed. Because of the fact that the finding of equipment installed without permits poses a very difficult policing problem in a large municipality, high fees and heavy fines may have to be invoked. While the latter can ordinarily be condoned, the charging of high permit, license, and inspection fees for work done by law-abiding contractors is not so readily acceptable because it forces them to finance the apprehension of the violators.

If a predominance of unqualified and unscrupulous individuals seems to exist and the work that they are doing jeopardizes the public safety and welfare, it may be necessary to set up administrative procedures aimed at strict control. A means of such control is to license the contractors doing the particular class of work that is covered by the code.

The licensing of such persons must be regarded, in the best interests of the public safety, as a very serious undertaking on the part of the municipal agency because it alone will be able to grant or deny individuals the privilege of rendering a particular service to the public. The municipal agency, then, is placed in a position whereby it must determine the individual's capabilities, in so far as they pertain to the rendering of such serv-

ice in a safe manner, before it assumes the responsibility of certifying his qualifications by granting him a license.

An affidavit stating the applicant's qualifications for a license may be sufficient, but, unfortunately, the unscrupulous operator usually is also dishonest and he very likely will not hesitate to make false statements in order to obtain a license. So, it has been found, by actual trial, that an examination procedure to determine the fitness of the individual to engage in his chosen occupation should be included. The bonding of licensees may be required, if such procedure seems necessary, but the benefits of a requirement of this kind seem questionable.

Code Not Revenue Source

Once again, it is necessary to call attention to the fact that operation of a safety code should not be used as a means of raising municipal revenues other than those necessary to support the operation of the code. The licensing of contractors should by no means be regarded from the monetary viewpoint in any other light.

A Board of Examiners, composed of persons outside the enforcement agency and selected because of their ability in the particular field has been found to be a very satisfactory means of determining those qualified to be licensed. Suitable penalty provisions will naturally have to be set up for those who fail to obtain the required licenses and who operate without them, as well as for the licensees who fail to abide by the law.

In some communities still another administrative provision has proven to be of value. This concerns a reciprocal agreement enabling surrounding communities to adopt contractor licensing provisions of one community without the necessity of the separate licensing of the contractors in each and every community. Such an agreement permits a contractor licensed in one community to practice in the other communities by simply registering in the community in which he wishes to practice.

Probably the most significant part of such an agreement should be that the provisions that are intended to be reciprocal be the same, or nearly the same, in all the communities involved. As an example, if a reciprocal contractor licensing provision is to be included, then the qualifications for licensing and the examinations prerequisite to licensing should be set up similarly in all communities involved.

'Reciprocal Arrangement'

May Save Community Expense

By so doing, the community granting the license assumes the responsibility for the man's ability to practice his trade, but, since the man is registered in the other communities in which he works, the other communities can rightfully punish him if he fails to fulfill his obligations.

Such reciprocal arrangements are of definite value where a group of municipalities are clustered together or where one large municipality is surrounded by a group of smaller ones. It might be pointed out that at least in some instances the larger municipality, by virtue of its size, is more capable of supporting the necessary staff for the handling of contractor licensing and other code provisions, and the reciprocal arrangement makes it possible for the smaller community to have the benefits derived from the safety code without all the expense of setting it up.

Inspections and the application of code provisions to the equipment inspected must be made in an intelligent and a sensible manner. The powers of the inspection agency in the administration of an ordinance should be established, at least to a certain extent, in the administrative article of the ordinance, but the common sense application of these powers

rests with the personnel of the agency.

Again, it must be emphasized that politics and favoritism have no place in the enforcement of a safety code. Politics and engineering mix no better than the proverbial alcohol in the man and the gasoline in his automobile. From the inspector in the field to the top official in the office and all along the way the enforcement personnel should be well trained and experienced in the field of endeavor to which the code that they are to enforce applies.

Local conditions may make it necessary to establish the qualifications of part or all of the enforcement personnel in the administrative article of the code, or the required staff may be selected through established Civil Service procedures.

Engineers in general are well aware of the fact that there can be no letting down in the quest for knowledge and so their study is a more or less continuous process. A good enforcement agency must follow the same pattern by insisting that the individuals concerned keep abreast of new developments. Periodicals that cover the field, bulletins and advertising material on new equipment, along with engineering data on equipment governed by the code, should be made available to all personnel.

Inspectors Pool Information

Periodic meetings of inspection personnel have been found to be a means for the promoting of uniform inspection procedures, which is very important, as well as a means of disseminating information. Each person is encouraged to tell of the new equipment he may have inspected and to ask questions concerning things he does not understand. Thus the information of one has a tendency to become the property of all.

Actual safety inspection of equipment should be a methodical investigation of the various component elements to determine not only whether the applicable provisions of the ordinance have been met but also whether the equipment, because of its construction and assembly, can be expected to function safely for a reasonable period.

The working portions of a safety code serve as a guide to the good inspector, but he must apply his training, education, and common sense in making inspections because it is virtually impossible to cover adequately in a safety code all the conditions that exist or that may arise in any field.

Therefore, the training and supervision of inspection agency personnel is fully as important as the ordinance itself. Safety is the prime consideration and, admitting that a municipal safety code cannot contain adequate and complete details to cover all situations, the burden of intelligent application of the code in the best interest of all concerned rests squarely upon the personnel of the inspection agency.

Summarizing then, the municipal ordinance must contain adequate provisions enabling the enforcement agency to function, provide for punishment of violators, and may set up a means of financing its own operation. In turn, the enforcement agency must be staffed with capable personnel to intelligently enforce the provisions of the code.

(See text of Detroit code on next page.)

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Text of Administration Section In Detroit Municipal Code

Editor's note: As an example of the type of administrative code discussed by John C. Rehard, the administration section of Detroit's municipal code, as amended in February, follows:

Section 3001. This ordinance shall apply to all new refrigerating systems and to parts of present systems repaired, replaced, or added to subsequent to its adoption.

Section 3001.1. No person, firm or corporation shall install or contract to install, alter or service any refrigerant containing part of any refrigerating system in the City of Detroit, without first securing a license therefor from the Mayor or the City of Detroit except as herein provided.

A contractor's license to install, alter and service refrigerating systems shall be issued by the Mayor upon the recommendation of the Board of Examiners when a fee has been paid and a duly executed bond in the Sum of One Thousand (\$1,000.00) Dollars running to the City of Detroit for the faithful observance of the provision of this Ordinance has been filed with the Department. Such bond shall be a personal bond with two sureties, or one from a recognized and approved surety company acceptable to and approved by the Corporation Counsel of the City of Detroit.

All such licenses shall be renewed annually and shall be revocable by the Mayor upon recommendation of the Board of Examiners.

Causes for revocation of licenses shall be gross incompetence, gross neglect, deliberate misrepresentation or willful failure to comply with the requirements of this Ordinance.

A license shall be classified and limited as to definite refrigerants and types of refrigerating systems with which the applicant is familiar in the installation or servicing, and the applicant shall be licensed for that particular refrigerant or refrigerants and types of systems; provided, however, any person, firm or corporation may make application for and receive a license to engage in the installation and servicing of all types of refrigerating systems containing any, or all, approved refrigerants.

No license shall be issued until the applicant has shown to the Board of Examiners by sworn affidavit that he, or it, has been actively engaged in the installation or servicing, or both, of refrigerating systems for a period of at least three (3) years, or has, in his regular employ and actively in charge, a person who has been previously engaged in the installation or servicing of refrigerating systems for a period of at least three (3) years, provided that credit for one (1) year of actual experience in the installation or servicing of refrigerating systems shall be extended to any applicant who shows on the sworn affidavit graduation in refrigeration from a recognized school of engineering. Also the applicant in the sworn affidavit shall show the refrigerant and types of refrigerating systems with which he has familiarized himself during his actual engagement or education in the installation or servicing, or both, of refrigerating systems.

EMPLOYEE'S NAME ON APPLICATION

Should the license given be based on a regular employee having three (3) years experience, the application shall name the employee as well as the employer. Should the employee's services terminate, the license shall be cancelled, provided, that a ten (10) day period may be allowed the employer, with approval of the Examining Board, to replace him by a qualified employee. The Department shall be notified when such change takes place and the new employee's name shall be entered on the current application.

The Board of Examiners shall determine, by written and oral examination, the qualifications of an applicant in accordance with the sworn affidavit submitted. The Board of Examiners shall determine the time and place for such examinations. There shall be at least three (3) members of the Board of Examiners present at the oral examination of any applicant.

Section 3001.2. No person, firm or corporation shall install, alter or make major replacements, such as receivers, condensers, compressors, piping, etc., in any part of any refrigerating system except as herein provided until such person, firm or corporation has filed with this Department and received an approved permit for the work specifically intended on each individual system; provided, that in cases of emergency the permit shall be obtained within seventy-two (72) hours from the time of installation, alteration or major replacement was started. Further, provided, that permits will not be required on the installation, alteration, or major replacement and use of refrigerating systems in single or two-family residences, or for new unit systems containing not more than six (6) lbs. of refrigerant in Residential Occupancies, or for new self-contained unit systems containing not more than 6 pounds of Group 1 refrigerant in Commercial Occupancies and not more than 20 pounds of Group 1 refrigerant in Industrial Occupancies, provided, that such unit systems comply with all other requirements of this Code.

Such applications shall be made on forms provided by the Department and shall contain information deemed pertinent by the Department for the proper description and completion of the work intended except as hereinafter provided.

Section 3001.3. Ventilating or air circulating systems to be used in conjunction with refrigerating systems shall not be installed, or any alteration made, that affects the installation provisions of this ordinance and the safety of the refrigeration system without a permit approved by the Department.

Section 3001.4. Blue prints or suitable sketches shall be submitted for all refrigerating systems installed, except unit and other systems for which pertinent ordinance requirements can be shown on the application for permits.

Blueprints shall be made in duplicate, shall be drawn to a workable scale and shall bear all pertinent data relating to the installation, such as construction and location of machinery room and method of its ventilation; size and location of piping, valves, fittings and safety devices; volume of rooms where applicable to the ordinance; location of ducts and plenum chambers and protective devices appertaining thereto.

Section 3001.5. Fees for the issuance of installation permits, licenses, certificates, examination of applicants for licenses and for inspections required under the provisions of this Ordinance shall be collected by the Bureau of Licenses and Permits of the Department of Buildings and Safety Engineering. The amount of such fees shall be established by the Board of Rules of said Department and shall cover the cost of inspection and supervision resulting from the enforcement of this Ordinance, but in no case shall the installation permit fees be less than one dollar (\$1.00) or more than twenty dollars (\$20.00) for each refrigerating unit; nor the license, certificate or inspection fees less than one dollar (\$1.00) or more than twenty-five dollars (\$25.00) for each unit; nor the Contractor's License fees less than ten dollars (\$10.00) or more than twenty-five dollars (\$25.00); nor the Operator's License and Examination fees less than one dollar (\$1.00) nor more than six dollars (\$6.00).

Section 3001.6. The Commissioner and his authorized assistants shall have the right during reasonable hours to enter any building or premises in the City of Detroit for the purpose of making any inspections or tests of any refrigerating system, or part thereof, contained therein.

It shall be the duty of the Commissioner's authorized assistants to inspect all refrigerating systems within the City of Detroit, except as hereinafter otherwise provided.

FREQUENCY OF INSPECTIONS

The Commissioner or his authorized assistants shall make an inspection of all refrigerating systems, repairs or alterations thereto at the time of installation where such installation, repair or alteration requires a permit under this ordinance. All refrigerating systems actuated by motors or engines which have a standard rating of more than one (1) horsepower each and all refrigerating systems used for air conditioning for human comfort shall be inspected annually except as herein otherwise provided, that unit system room coolers having a refrigerant containing capacity of not more than ten (10) pounds shall be exempt from this requirement. All multiple domestic systems serving more than two families shall be inspected biennially.

In addition to the minimum pressure tests, hereinafter provided for, the Commissioner and his authorized assistants are hereby empowered to make or cause to be made such tests as may be necessary to ascertain the condition of the piping, tubing, fittings, apparatus and machinery used in such refrigerating systems.

Whenever any part of any refrigerating system is found to be unsafe to life or property, the Commissioner or his authorized assistants are hereby empowered to condemn the same, and no such refrigerating system shall thereafter be used until put in a safe condition and approved by the Department.

The Commissioner or his authorized assistants may make such other inspections and tests as are deemed necessary for the purpose of safety and the enforcement of this Ordinance.

It shall be unlawful for owners, contractors or workmen to lath over or in any way conceal any piping, outlet boxes, or other part of a refrigerating system until an inspection has been made thereof and due notice given that the work has been passed upon by the Department. In case any obstruction has been placed so as to conceal any piping or part of the installation before the Department has made an inspection thereof, the Department may remove or cause to be removed any such lath or obstruction which may conceal the work so that proper in-

Milwaukee, Detroit Officials Confer



Denoting the increasing interest in municipal codes for refrigeration and air conditioning, city officials of Milwaukee who are considering a city code of their own came over to Detroit recently to confer with administrators of the latter city's code. Checking facts and figures here are (seated) Detroit Fire Marshall Edward W. Hall; Milwaukee Fire Chief Edward E. Wischer; John C. Rehard, chief safety engineer of Detroit; Jos. P. Wolff, commissioner of Detroit's Department of Buildings and Safety Engineering; Alderman John E. Kalupa of Milwaukee; Milton J. McGuire, president of Milwaukee's Common Council; (standing) Elmer D. Merritt, executive secretary of the Milwaukee Refrigeration Contractors Association; Alfred C. Hass, Milwaukee alderman and refrigeration contractor; G. C. Murphree, Detroit contractor and member of Detroit Refrigeration Board of Examiners; Frank J. Drogosch, senior assistant mechanical engineer of Detroit; and C. J. Purdie, also a contractor and member of the Detroit board of examiners.

spection may be made. Under urgent conditions, upon proper notification, it shall be the duty of the Department to make a proper inspection within forty-eight (48) hours from the time it is notified.

When any new work, whether installation, alteration or major replacement, for which a permit is required under the provisions of this Ordinance, has been completed to the satisfaction of the Department, there shall be issued upon request of the licensee doing said work, a certificate of inspection certifying that the installation is in accordance with the provisions of this Ordinance and that the refrigerating system may be operated. Such certificate shall be posted in a conspicuous place in the proximity of the compressor.

Section 3001.7. The owner of the building, structure or premises in which such refrigeration system or unit subject to inspection is maintained shall obtain an annual license from the Bureau for the maintenance and operation of each commercial and industrial refrigeration system or unit and a biennial license for the maintenance and operation of each multiple domestic system.

For the purpose of classification and establishing the license fees, refrigerating systems or units shall be divided into the following sub-classes:

Industrial and Commercial:

- Class A—1 to 5 tons, inclusive.
- Class B—6 to 50 tons, inclusive.
- Class C—Over 50 tons capacity.

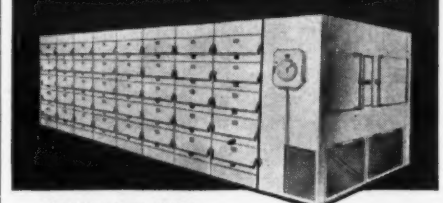
Multiple Domestic Systems:

- Class D—Buildings not exceeding ten apartments.
- Class E—11 to 20 apartments.
- Class F—21 to 30 apartments.
- Class G—Over 30 apartments.

If the Commissioner or his authorized assistants shall find that any part of any refrigerating system within the City of Detroit has been installed, altered, or a major replacement made subsequent to the passage of this Ordinance without a permit having first been obtained as herein provided for, or if upon any inspection the Commissioner or his authorized assistants shall be of the opinion that any refrigerating system is unsafe or hazardous or is in a condition dangerous to life or property, written notice shall forthwith be given to the owner and user of the refrigerating system of such condition and such refrigerating system or part thereof shall not thereafter be operated until the same has been put in safe condition and approved by the Department, provided, however, that within ten (10) days after any such written notification to such owner or occupant to correct or remedy any hazardous condition an appeal stating specifically the questions which the applicant desires to have passed upon, may be taken to and shall be heard by the Board of Rules of the Department. The members of the Board of Rules are authorized to take

in the business of installing or contracting to install, alter, or service refrigerating equipment covered by this ordinance, parts or accessories thereof, or appurtenances thereto, within the corporate limits of the City of Detroit upon registration with the Department and the payment of a nominal registration fee; provided that such municipalities reciprocate in recognizing refrigeration installation contractors duly licensed under the provisions of this ordinance by granting them the same privilege and charging the same uniform license and registration fees. Provided further, that the licensing ordinance, examinations, and examination procedures of such municipalities are substantially similar to the requirements set forth in this ordinance. No refrigeration installation contractor's license shall be recognized for the purpose of registration by the City of Detroit which has been issued by a municipality which has failed to approve by affirmative action of its legislative body, the reciprocal licensing provisions contained in this ordinance. The right of any municipality to participate in the reciprocating section of this ordinance shall be determined by the Boards of Examiners of the reciprocating municipalities, based upon qualifications outlined in this ordinance.

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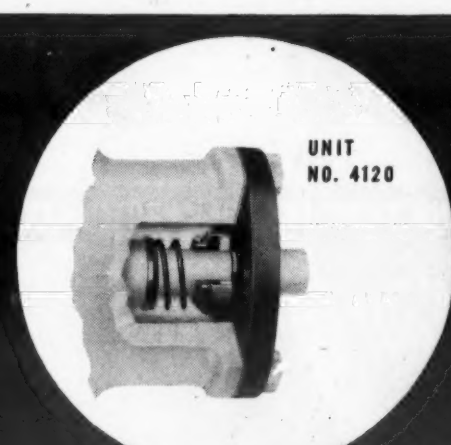
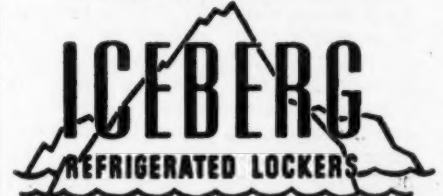
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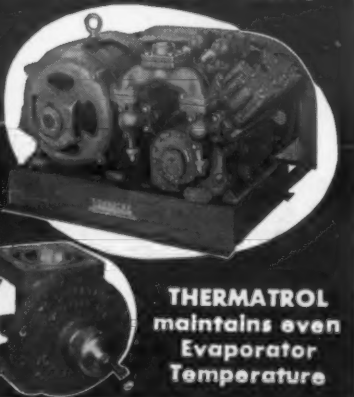
These are some of the "plus" advantages now available in all SCHNACKE improved Compressors and complete Condensing Units.

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THERMATROL maintains even Evaporator Temperature

Production of Out-Moded Replacement Parts In 'Service Factory' Demands Keen Planning

Frigidaire Plant Stores 80,000 Tools, Dies To Keep Servicemen Supplied

By E. E. Landis, Service Manager, Frigidaire Div., General Motors Corp.

No matter how finely engineered and constructed, there comes a moment in the long life of any piece of refrigerating equipment when the inevitable happens and it ceases to perform the function for which it was originally designed.

Mrs. Housewife's old household refrigerator may have been humming along faithfully for nearly 20 years when suddenly—"it won't run." Joe, the grocer around the corner, has a walk-in job that has been virtually trouble-free for more than a score of years when—"Blooe."

Into this unhappy state of affairs steps a man of unusual fortitude—Mr. Serviceman. He comes well equipped—with a confident smile, "know-how" aplenty, and an adequate supply of tools and spare parts. In a sense, at this moment, the future of the manufacturer hangs in the balance. If, when the serviceman leaves, the refrigerating equipment is back to "refrigerating" and his smile has been infectious to the point of dispelling any qualms that may have existed in the mind of the erstwhile unhappy user, the manufacturer has a "grub-stake" in the business for years to come.

SALES, SERVICE BUILD BUSINESS

That sales and service go hand-in-hand as business-builders, is a fact that has not been overlooked by old-line companies in the refrigeration equipment manufacturing business. As a consequence, Frigidaire for one, is employing its nationwide service organization as a goodwill building agency for the company with its customers. The job of maintaining and increasing this high level of customer goodwill remains, as in the past, one of the most important phases of the business—one that will pay sales dividends in the future.



Frigidaire maintains a "factory within a factory" to mass-produce a wide assortment of parts for discontinued product lines. Once new products are put on larger assembly lines, tools and dies are turned over to this department. The "service factory" occupies 200,000 sq. ft. of floor space, but constitutes only a small phase of Frigidaire's operation.

High standards of quality service work depend upon a number of factors. Individual service organizations must blanket the country and be on tap for customers in every hamlet, village, town, and city. The importance of "know-how" cannot be over-emphasized. The serviceman must also be equipped with the proper tools to do his job. Above all, he must have access to an almost unlimited supply of spare parts—some of which must date back more than 20 years.

It is one of the responsibilities of the Frigidaire service department to make certain that parts and assemblies are on hand to meet all of the requirements of the field service organization on Frigidaire products.

To accomplish this, the service department carries an inventory of about 14,000 separate parts at all times. The job of determining which parts and assemblies are to remain in stock, plus the quantity, rests with the service inventory control. It is up to this section to accurately forecast the demand on any particular item and stock the necessary amount. Inventory control is in much the



Supplying old-model parts to servicemen in the field requires that Frigidaire store some 80,000 tools and dies in racks such as these. Many ingenious methods must be used to conserve floor space when so large a quantity of items are kept ready-at-hand. Die racks are often used as partitions.

same position as a man walking a tight rope. A bad slip could be costly. If the section were to over-estimate the demand, a large stock of unwanted parts would gather dust and tie up storage space. On the other hand, if the demand is underestimated, service work in the field is hindered. As a consequence, inventory control is continually studying parts usage and other factors affecting the demand for parts.

THE SERVICE FACTORY

The parts and assemblies ordered by Frigidaire inventory control to keep the stocks at desired levels come from three main sources. Such items as copper tubing, bolts, and such are ordered from outside suppliers. Parts for up-to-date equipment are drawn from current production. In the case of parts for products no longer manufactured, orders are placed with the "service factory"—a plant within a plant, which builds parts for discontinued equipment lines.

The service factory occupies more than 200,000 sq. ft. of floor space and is completely equipped for mass production—but on a small scale when compared with the over-all Frigidaire operation. When a new model is placed in production on large assembly lines, the tools and dies necessary in the manufacture of the product are transferred to the service factory for subsequent use.

Items manufactured in the service factory are many and varied. Because of the nature of the operation, which often call for comparatively short runs of some parts, change-overs to production of another item must be speedily handled. However, this does not mean that the service factory is constantly skipping around, making a "little of this and little of that."

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Editor's Note: The following article describes the planning and organization necessary in developing the proper stocks of service parts for Frigidaire equipment. It should be of major interest to all who have the problem of keeping up proper stocks of parts for models that go back over a period of several years.

Prior to the time an order for a particular part is filed, inventory control and material and product control sections determine the most economical way to handle the job. When an order for a certain item is forwarded the service factory, studies are made to determine the number required to justify setting it up for production and make certain that the price of the item will not prove prohibitive.

However, because of the wide variety of required parts used in service operations throughout the country, production changes come more frequently in the service factory than elsewhere at Frigidaire. In a nutshell, the service factory must be "jack-and-master-of-all-trades."

LARGE DIE AND TOOL STORAGE FACILITIES

Rapid production change-overs in the service factory make it necessary to have 80,000 tools and dies on hand. Such a requirement, in turn, creates a storage problem. Through-

out the service factory, proper, storage racks for holding tools and dies have been constructed along side of aisles. Die racks are often used as partitions between various operations to further conserve space.

All parts manufactured here must meet the same rigid standards as called for in original specifications. Every Frigidaire part stands a series of inspections and when forwarded to the field service organization is backed by a one-year warranty covering defects in material and workmanship.

Prior to shipment, however, finished parts go into the service department stock room. This section, which occupies approximately 188,000 sq. ft. of floor space, includes shipping facilities plus storage bins. Bin after bin is filled with a wide assortment of parts, ranging in size from tiny rivets to receivers and condensers for 50-ton capacity compressors. More than 120 workers are employed in the stock room and shipping section keeping parts moving out in accordance with demands of the field service organization.

The Frigidaire service organization does not stop here. There is a big field contact staff for constant field-factory liaison and a highly skilled technical department which, in co-operation with factory engineers, constantly seek—through research and test—to reduce and eliminate service problems. This department also prepares up-to-the-minute training materials and conducts training schools.

Strategically-located zone shops extend Frigidaire's service facilities on "sealed" refrigerating units, affording a much faster operation to dealers throughout the country. District service organizations are so located that no retailer is isolated from technical advice and assistance. Here large pools of parts are maintained to speed up service operations.

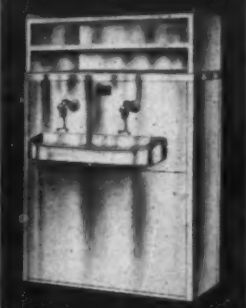


The stockroom for the parts contains everything from tiny rivets to receivers and condensers for 50-ton compressors. Inventory control sections have to determine accurately beforehand how much production of old parts should be scheduled to handle orders from field men. All in all, it takes approximately 188,000 sq. ft. of stockroom area to house the thousands of parts kept on hand by Frigidaire. Over 120 workers are needed in the stockroom and the shipping section to keep parts flowing.

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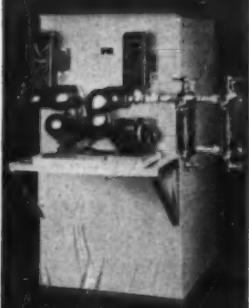
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Farm and home freezers complete with high and low side cabinet, where 50% or more of the net cabinet capacity is designed for the freezing and/or storage of frozen food.

FEBRUARY (30 Companies)

Sizes	Domestic (48 States and D. C.)	Canadian	Other Foreign	Total
1. 4.9 cu. ft. and under..	2,393	....	234	2,627
2. 5.0 to 6.9 cu. ft.	1,767	....	42	1,809
3. 7.0 to 8.9 cu. ft.	4,363	....	160	4,523
4. 9.0 to 10.9 cu. ft.	1,520	....	7	1,527
5. 11.0 to 12.9 cu. ft.	8,289	....	15	8,304
6. 13.0 to 16.9 cu. ft.	1,558	....	5	1,563
7. 17.0 to 20.9 cu. ft.	3,509	....	15	3,524
8. 21.0 to 29.9 cu. ft.	60	....	....	60
9. 30.0 to 39.9 cu. ft.	293	....	....	293
10. 40.0 to 49.9 cu. ft.	3	....	....	3
11. 50.0 to 59.9 cu. ft. ....	....	....	....	....
12. 60.0 cu. ft. and over..	7	....	....	7
Total	23,762	....	478	24,240

FIRST TWO MONTHS

Sizes	Domestic (48 States and D. C.)	Canadian	Other Foreign	Total
1. 4.9 cu. ft. and under..	3,741	....	236	3,977
2. 5.0 to 6.9 cu. ft.	3,392	....	229	3,621
3. 7.0 to 8.9 cu. ft.	13,763	1	203	13,967
4. 9.0 to 10.9 cu. ft.	2,603	....	10	2,613
5. 11.0 to 12.9 cu. ft.	14,718	....	24	14,742
6. 13.0 to 16.9 cu. ft.	5,036	....	22	5,058
7. 17.0 to 20.9 cu. ft.	6,252	....	16	6,268
8. 21.0 to 29.9 cu. ft.	560	....	....	560
9. 30.0 to 39.9 cu. ft.	625	....	....	625
10. 40.0 to 49.9 cu. ft.	3	....	....	3
11. 50.0 to 59.9 cu. ft.	1	....	....	1
12. 60.0 cu. ft. and over..	32	....	3	35
12. 60.0 cu. ft. and over..	*22	....	*3	*25
Total	50,704	1	740	51,445

*January data of one company corrected.

Avco Mfg. Corp.; August G. Barkow Mfg. Co.; Beatty Mfg. Co.; Ben-Hur Mfg. Co.; Brewer-Titchener Corp.; Carrier Corp.; The Coolerator Co.; Deep-freeze Div., Motor Products Corp.; Frigidaire Div., General Motors Corp.; General Electric Co.; General Refrigerator Co.; Gibson Refrigerator Co.; Hotpoint, Inc.; International Harvester Co.; Masterfreez Home Locker Mfg. Co.; The Maytag Co.; Nash-Kelvinator Corp.; Norge Div., Borg-Warner Corp.; Portable Elevator Co.; Oregon Refrigerator Co.; Revco, Inc.; Sanitary Refrigerator Co.; Schaefer, Inc.; Seeger Refrigerator Co.; Emil Steinhorst & Sons, Inc.; Stoddard Mfg. Co.; Sub-Zero Freezer Co., Inc.; Victor Products Corp.; Whiting Corp.; and Wilson Cabinet Co., Inc.

Electric Ranges (Over 2½ Kw.)
Domestic (48 States and D. C.),
Canadian, and Other Foreign
Sales Billed

Units	First Two Months (19 Cos.)	February (19 Cos.)
Domestic	193,843	87,370
Canadian	2,071	....
Other Foreign..	2,338	963
Total	198,252	88,333

Participating companies: Admiral Corp.; Avco Mfg. Corp.; Electromaster, Inc.; Estate Heatrola Div., Noma Electric Corp.; Florence Stove Co.; Frigidaire Div., General Motors Corp.; General Electric Co.; Gibson Refrigerator Co.; Hotpoint, Inc.; Kalamazoo Stove & Furnace Co.; Kelvinator Div., Nash-Kelvinator Corp.; Landers, Frary & Clark; A. J. Lindemann & Hoverson Co.; Malleable Iron Range Co.; Norge Div., Borg-Warner Corp.; Roberts & Mander Corp.; Rutenber Electric Co.; Thermador Electrical Mfg. Co.; Westinghouse Electric Corp.

NEMA Freezer Sales --

(Concluded from Page 1, Column 2)
by the 11 to 12.9-cu. ft. category with 14,742 units sold. The other categories are all far behind these leaders.

Reversing the domestic trend, foreign sales for February jumped 80% over those of January, rising from 265 units to 478 units. They were particularly strong in sizes below 9 cu. ft.

Where only two units of less than 5 cu. ft. were sold outside the United States during January, 234 were sold in February. In the 7 to 8.9-cu. ft. category, 43 units were moved in January and 160 in February.

In foreign sales for the two months, the less than 5-cu. ft. category ranks first with 236 units sold, the 5 to 6.9-cu. ft. group, second, and the 7 to 8.9-cu. ft. class a close third. All other categories are far behind.

Calif. Dairy Law Repeal Blocked--

(Concluded from Page 1, Column 5)
claimed to be the instigator of the new regulations.

Senate Bill 393 was opposed by the northern California group through its public relations committee, which appeared before the Senate committee during hearings on the measure. The association committee also represented contractor organizations in Los Angeles, San Diego, and Fresno.

Had the bill become law, it would have permitted ice cream companies "to return to the all too familiar practice of disposing of refrigeration for no other purpose than to control ice cream business," according to Z. E. Jones, executive vice president of the northern California association.

"This, as we all know, is extremely detrimental to our industry," he wrote members of the commercial refrigeration industry in the state following the contractor committee's first appearance before the senate committee.

"The reason advanced for the proposal repeal is that it has been found impossible to secure printed retail list prices on commercial refrigeration lines from the industry, hence the law could not be complied with or enforced."

Jones' letter explained that the contractor committee, in lodging its initial protest against the bill, had asked and received a two weeks' postponement for further hearing so the committee could prepare amendments and statistical data for senate committee consideration.

"We are working out a mark-up

formula to be written into the act and a provision that ice cream companies will confine their repair and service work to their own rental equipment or to that being sold under conditioned sales contracts," the letter said.

Jones asked contractors to fill out an enclosed questionnaire so the association committee would have industry-wide statistics with which to indicate to legislators the size and importance of the industry.

Data secured from the questionnaires was then presented at the postponed hearing. A summary of the data follows:

	Total	Average
Number of contractors reporting	111	
Number of employees	1,758	16
1948 payroll	\$6,494,253	\$58,507
1948 business	\$29,484,133	\$265,623

In reporting results of the hearing to association members, Jones noted that "previous to the senate committee hearing a few of us met with representatives of the major ice cream companies and the Dairy Institute, at their request."

"They apparently preferred that we not proceed with our hearing and that we withdraw our proposed amendments to their bill. These two conferences produced no results except to reveal that they intended to oppose any move we might make either to amend their bill or to continue hearings. We informed them that we would proceed with the hearing."

The senate committee then killed

the bill by refusing to vote it out. At the same time, the committee tabled the amendments proposed by the contractor committee, leaving the law as it stands.

"We understand," Jones said in his report, "a two-thirds vote of the senate is required to bring the bill out of committee. It will be necessary that we keep careful watch on further developments as the ice cream and dairy interests may be expected to bring the bill out if possible or introduce a new bill."

"The many letters received from refrigeration contractors by the Senate committee members doubtless had no little influence on the committee's action."

In addition to forbidding manufacturers and distributors of ice cream from selling new equipment to customers at other than the equipment manufacturer's retail list price, the "ice cream" law requires that terms must be the same as those recommended by the manufacturer of the equipment.

It also requires that conditional sales contracts on equipment sold to retailers must provide for a payment of at least one-third cash and the balance to be paid in 18 months or less. Contract prices must include interest at current rates and installation and maintenance for the life of the contract.

The law does not prohibit rental of refrigeration equipment which is "reasonably necessary for the preservation of frozen products" provided there is "reasonable compensation" which provides for interest on investment, reasonable depreciation, and cost of repairs and maintenance during the normal life of such equipment.

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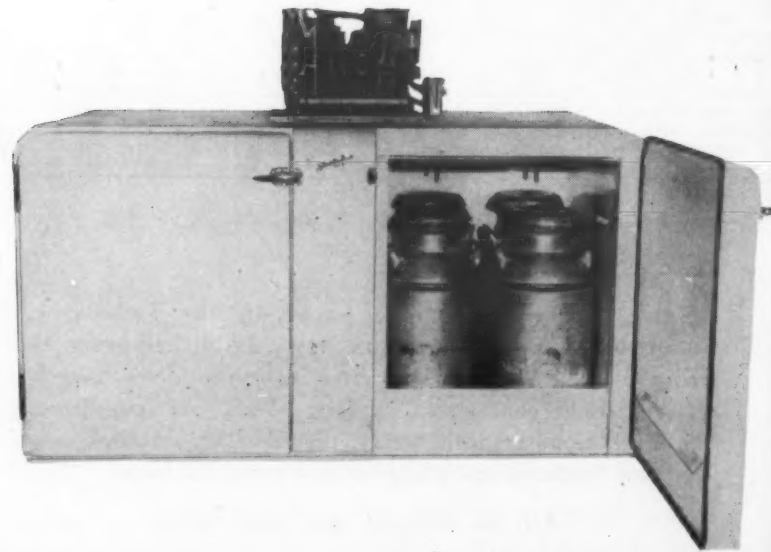
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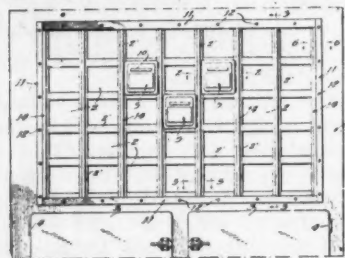
Manufacturer's representative, successful and experienced to represent nationally known manufacturer of complete line of liquid and beverage cooling equipment, self-contained drinking water coolers, refrigeration accessories and carbonators. Territory Eastern New York and Pennsylvania, Virginia and West Virginia. Man selected must have contacts and experience with refrigeration outlets, specialty distributors and fixture manufacturers. Give details in first letter.

Box 3170, Air Conditioning & Refrigeration News

PATENTS

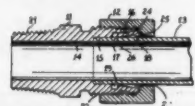
Week of February 1
(Continued)

2,460,468. REFRIGERATOR HAVING A DOOR HEATING DEVICE. Milton Rifkin, Chicago, Ill., and Myer Stephen Sutton, Minneapolis, Minn., assignors to Pres-O-Mat Corp., a corporation of Illinois. Application Dec. 7, 1946, Serial No. 714,846. 10 Claims. (Cl. 62-89.)



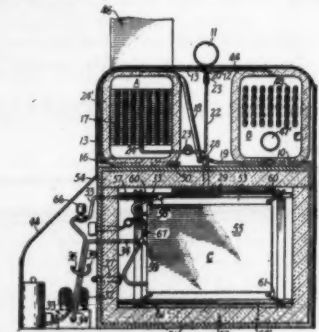
1. In a refrigerated cabinet having an opening in a wall thereof and a door comprising a closure for said opening, means for heating said door which comprises a plurality of conduits bordering a portion of said door, an electric heating element for heating the air within, and the walls of said conduits, said conduits being provided with transverse apertures through which the heated air from said conduits is directed toward said door, and means thermally connecting said conduits and door whereby heat is conducted from the conduit walls to the door.

2,460,621. TUBE COUPLING. Louis B. Courtot, Cleveland, Ohio, assignor to The Weatherhead Co., Cleveland, Ohio, a corporation of Ohio. Application July 10, 1945, Serial No. 604,163. 6 Claims. (Cl. 285-122.)



1. A tube coupling comprising a body adapted to receive a tube and having a tube sealing ring frangibly disposed integral with said body, and a tube nut for shearing said ring from said body and forcing it into engagement with a tube to be received in the body, said body having a recess adjacent said frangible connection whereby the sheared end of the ring can move axially and radially as it is sheared from the body.

2,460,623. LIQUID COOLER FOR AIR CONDITIONING SYSTEMS. Mario Di Zoppola, New York, N. Y., assignor, by mesne assignments, to Reconstruction Finance Corp., New York, N. Y., a corporation of the United States. Application Oct. 24, 1944, Serial No. 560,138. 4 Claims. (Cl. 62-134.)

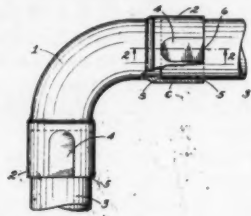


1. In an ice producing and storage device, a tank, a plurality of refrigerant fluid circulating units adapted to receive refrigerant fluid, means for supporting said units within said tank for movement in all directions, said means including links for supporting the unit and resilient means tending to return the unit to a predetermined position, whereby when ice is formed around the unit the latter will be permitted to move in any direction as expansion may occur.

2,460,665. SOLDER FITTING. Paul D. Wurzbarger, Cleveland Heights, Ohio. Application July 8, 1944, Serial No. 554,061. 4 Claims. (Cl. 285-115.)

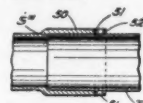
1. A fitting for a capillary joint having a socket adapted to receive through the open end thereof a tube or member telescopically with capillary space for bonding material between the interior surface

of the wall of the socket and the exterior surface of the said tube or member, part of the said wall of the socket comprising at least one thickened portion, a greater part of the said wall including



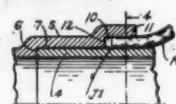
at least a portion of said wall near the said open end of the socket being substantially thinner than said thickened portion, said thickened portion having appreciably greater mass and heat capacity per unit of wall area than said thinner part of the wall, said thickened portion being disposed in the wall of the socket adjacent an exposed edge of said capillary space to provide a feeding point for bonding material.

2,460,666. FITTING. Paul D. Wurzbarger, Cleveland Heights, Ohio. Application Aug. 7, 1944, Serial No. 548,327. 4 Claims. (Cl. 285-115.)



1. A fitting for a capillary solder type joint having a socket part adapted to receive a tube or member in telescoping relation with capillary space between the adjacent surfaces thereof into which solder or other bonding material may be fed to unite said surfaces; said socket part having an open end at or adjacent to which said capillary space terminates in an exposed substantially annular edge and said socket part having at least one solder feeding notch extending longitudinally inward from said open end through the wall of said socket part and terminating interiorly of said edge of said capillary space and defining an inwardly protruding contour in the edge of said capillary space through which solder may enter said capillary space, said socket part having a portion adjacent its open end defining a non-capillary space with the tube or member to be received therein outwardly of said edge of said capillary space and said socket having a heat absorbing rib extending inwardly of said edge of said capillary space into the zone of said capillary space, and said notch transverse said portion and extending into said rib.

2,460,667. FITTING. Paul D. Wurzbarger, Cleveland Heights, Ohio. Application Oct. 18, 1944, Serial No. 559,171. 5 Claims. (Cl. 285-115.)



1. A joint comprising in combination a socket and an entering member telescoping with said socket, said socket and said entering member having therebetween a space of capillary magnitude to be filled by a bonding material by capillary attraction, said socket having at least one radially projecting feeding pocket of non-capillary magnitude adjacent the outer edge of said socket and extending longitudinally back from said outer edge less than the full length of said socket and forming an open-ended cavity for receiving bonding material.

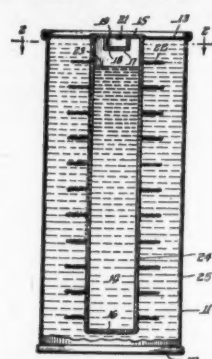
2,460,668. FITTING. Paul D. Wurzbarger, Cleveland Heights, Ohio. Application Oct. 18, 1944, Serial No. 559,172. 5 Claims. (Cl. 285-115.)



1. In a fitting for a capillary joint a socket part having a wall not substantially thicker than required for the mechanical strength of the joint, said wall having an internal surface adapted to define a capillary space with the juxtaposed surface of a member telescopically received therein, said socket part also having a raised external rib rising above the external surface of said wall a distance at least substantially equal to said wall thickness and overlying a part of said capillary space, at least the greater part of said rib being spaced away from

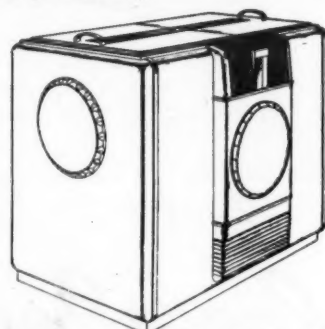
the open end of the socket, said rib having a transverse opening extending therethrough and through said wall and communicating with said capillary space, said opening being adapted to receive a length of bonding material substantially equal to the thickness of the wall of the socket plus the thickness of the rib, whereby sufficient heat is made available to melt the bonding material in said opening and induce its capillary flow or flash from said opening in and through said space when the temperature of the socket wall and rib is but moderately in excess of the melting point of said bonding material.

2,460,765. REFRIGERATING MEANS FOR CONTAINERS. Herbert E. Palaith, Evanston, Ill. Application Oct. 23, 1945, Serial No. 625,341. 7 Claims. (Cl. 62-92.)



1. A food or beverage container comprising means forming a compartment for the food or beverage, a cover for said compartment, and a second compartment united to the cover of the first compartment for receiving an expandable refrigerant adapted to absorb heat from the food or beverage in the first compartment or venting of the second compartment to atmosphere, and closure means for said second compartment and readily operable to open said second compartment to atmosphere to initiate the refrigerating action of said refrigerant and means in said second compartment providing an orifice of predetermined size to control the rate of expansion of the refrigerant in the said closure means to prevent quick freezing of the food or beverage to the wall surface of the second compartment.

152,579. DESIGN FOR A CABINET FOR A BOTTLED BEVERAGE COOLING UNIT OR SIMILAR ARTICLE. Arthur C. Wesche, Bridgeport, Conn., assignor to General Electric Co., a corporation of New York. Application Sept. 24, 1947, Serial No. 141,558. Term of patent 14 years. (Cl. D67-4.)



The ornamental design for a cabinet for a bottled beverage cooling unit or similar article, substantially as shown and described.

AVAILABLE FOR LICENSING FOR SALE

Pat. 2,449,343. REFRIGERATION APPARATUS. Sept. 14, 1948. Evaporator unit surrounding the refrigeration vessel in a "deep freeze" type refrigerator is so constructed that the thin wall of the deep vessel forms the inner wall of a continuous spiral evaporator coil extending from top to bottom of vessel. The horizontal and outer walls of the coil are formed by continuously arranging a thin sheet metal member, which is L-shaped in cross section, spirally around the outer surface of the vessel wall. Thereafter, a band of steel is spirally wound tightly around the L-shaped member and

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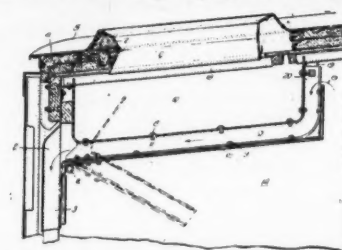
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adjacent convolutions of band welded together at intervals. (Owner) Gertrude S. Torbensen, 1932 East 116th St., Cleveland 6, Ohio. Group 35-84. Reg. No. 18,157.

Week of February 8

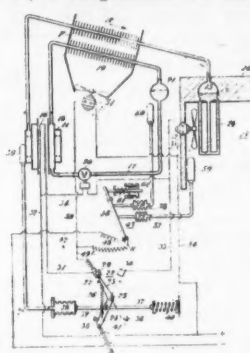
2,461,012. ASSEMBLY FOR SUPPORTING REFRIGERANT CONTAINERS IN REFRIGERATOR CARS. Alfred L. Thompson, Munster, Ind., assignor to Standard Railway Equipment Mfg. Co.



1. A refrigerant container assembly for a railway refrigerator car having a wall, a vertical flue forming a part of said wall, a roof, and a hatch opening in said roof, said assembly comprising a refrigerant container below said hatch opening, beams extending across the bottom and one side of said container and secured thereto, said beams being removably supported by said roof, a drip catcher supported by said beams and spaced from said container to form ducts between said beams which communicate with said flue at one end thereof and with the interior of the car at the other end thereof, and a hinge swingably supporting one side of said assembly to said wall, so that upon removal of removable means

said assembly may be swung downwardly from said roof.

2,461,262. REFRIGERATION. Nils Brandt af Kleen, Stockholm, Sweden, assignor to Kleen Refrigerator, Inc., Hoboken, N. J., a corporation of Delaware.



3. A refrigerating system comprising a refrigerant vapor-supplying means, an ambient air-cooled condenser, a refrigerating evaporator, connections providing communication between said vapor-supplying means, condenser and evaporator, a heater for said vapor-supplying means, control means for varying the heating rate of said heater, means for varying the capacity of said condenser, thermostatic means responsive to a temperature condition affected by said evaporator, thermostatic means responsive to ambient air temperature, and operating means responsive to both thermostatic means capable of controlling both said heat-varying means and said condenser capacity-varying means.

(To Be Continued)

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MAN, SINGLE, with ten years experience in domestic and commercial refrigeration, service, installation, overhauling and sales. Fluent Spanish. Seeks position South America or anywhere outside United States with sales and service company. Would consider being trained by manufacturer as field representative, distributor, or dealer. Willing to invest \$5,000 as active partner in going business. References on request. Good appearance and personality. BOX 3168, Air Conditioning & Refrigeration News.

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WANTED SALESMEN; experienced in air conditioning, commercial refrigeration, and complete store equipment, on commission basis, in W. Fla. and S. E. Ala. Good territory. BOX 3164, Air Conditioning & Refrigeration News.

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CHIEFTAIN HERMETICS (new): 1/4 H.P. \$42.00 ea.; without condenser \$39.00; in lots of 10 \$37.00 ea.; in lots of 10 less condenser \$34.00 ea. New thermostatic expansion valves: Sporlan Stand. 1/2 T M 1/4 x 1/4 \$5.50 ea.; Sporlan Stand. 1/2 T F 1/4 x 1/4 \$5.50 ea.; Detroit 893 1/2 T F 3/16 10" super 1/4 x 1/4 P. \$4.50 ea.; Detroit non-adj. 893 X 1/2 T F 15 3" super 1/4 x 1/4 for home freezers or domestic \$1.50 ea. Seals, GE compressor parts and fittings at 1/2 price. Send for surplus sheet. **NORTHLAND REFRIGERATION COMPANY,** 1742 Wabansia Avenue, Chicago 22, Illinois.

SUBJECT TO prior sale: Hermetic Chieftain units: 1/4 H.P.—\$44.50; 1/2 H.P.—\$44.50. Other well known hermetics: 1/4 H.P. fan cooled—\$52.50; 1/2 H.P. fan cooled—\$57.50; 1/2 H.P. fan cooled heavy duty—

\$59.50; 3/4 H.P. fan cooled heavy duty—\$69.50. Open units—standard makes: 1/4 H.P.—\$56.00; 1/2 H.P.—\$64.50; 3/4 H.P.—\$84.50. 1 1/2 H.P. air or water cooled Universal Cooler—\$199.00; 2 H.P. air or water cooled Universal Cooler—\$224.00; 3 H.P. air or water cooled Universal Cooler—\$259.00. All above units new and in original crates. Air cooled condensers: 3 row, 1 pass, 13" x 12" x 3"—\$3.95; 4 row, 4 pass, 13" x 11" x 4 1/2"—\$4.45; 4 row, 2 pass, 18" x 12" x 4 1/2"—\$6.25. Upright receiver tanks, shut off valve, 4" x 11"—\$2.65. Penn low or high pressure control type, 260 Apol—\$3.75. Detroit Lubricator L. P. control—\$4.00. G. E. blower fan motor with fan—\$4.50. Superior heat exchanger, 13" overall, 1/4" x 1/4"—\$4.75; Mueller heat exchanger, 14 1/2" overall, 1/4" x 1/4"—\$5.00; Marle heat exchanger, 21" overall, 1/4" x 1/4"—\$7.50. Kramer Trenton panel blower complete with heat exchanger, 1/2 to 1 ton—\$29.00. Superior master drier, 1/4" flare x 1 1/4" x 5 1/2"—\$7.50. Weatherhead drier, 1/4" flare x 1 1/4" x 6 1/4" (lots of 10)—\$6.50. U. S. "Freon" gauge 1/4" face, 30" vac. 1500 or 3000" with corresponding temp. scale, red warning hand, mounting holes—\$4.50. Scientific dial thermometer, 4 1/4" face, minus 40 to plus 120, 5 ft. tube, mounting holes—\$4.50. Ranco type k.w. 412 cold control complete—\$4.00. **WALTER W. STARR,** 1207 George St., Chicago 13, Ill.

BUSINESS OPPORTUNITIES

WILL SELL paying compressor repair shop due to ill health. Oldest, largest, and best equipped shop in Midwest, complete stock modern tools plus electric bake oven. Inventory January, 1949: \$23,500, including approximately 600 rebuilt compressor bodies. Will discuss terms with reliable interested party. **SCHULTZ REFRIGERATION,** 1523 Putnam, Detroit, Michigan.

GOING REFRIGERATION business. Reason for selling: owner's sudden death. Experienced help available. Buyer privileged to buy home and shop combination if desired. Price including equipment, two trucks, goodwill: \$7,500.00. House and shop: \$7,500.00. Located in community of 20,000, plus surrounding towns. BOX 3151, Air Conditioning & Refrigeration News.

FOR SALE: Michigan's leading independent wholesale hermetic rebuilding business. Completely equipped plant, office equipment and new trucks. Good local and out of state business the year round. Will sacrifice for \$12,500 due to ill health. Building 22' x 125' available for long lease at low rent. BOX 3155, Air Conditioning & Refrigeration News.

FOR SALE at 1942 inventory price. Established over seventeen (17) years. National advertised refrigeration equipment and accessory lines. Grossing over \$200,000 annually. Covering all islands of the Territory of Hawaii. Owner retiring. For full particulars BOX 3163, Air Conditioning & Refrigeration News.

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WANT TO contact builder or contemplated builder of mechanical water cooler. Hold patents on liquid cooling that will cool water at least 20% faster than any cooler now on market. BOX 3167, Air Conditioning & Refrigeration News.

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Refrigeration Problems and their Solution

by Paul Reed

For Service and Installation Engineers



Paul Reed

Refrigerants (5)

The desperate necessity of war spurs technical advancement, which, in the peace following, is translated into new machines, new processes, and greater mass production. After World War I there was a tremendous upsurge in mechanical, electrical, and chemical activity. Mechanical refrigeration was one of the developments that was carried along on this tide.

Before and during the war, a few companies had made "electric refrigerators" on little more than an experimental basis, but it was not until after the war that any company got into what might be termed "mass production." By the beginning of 1920, one company was making as many as 25 a day. These were mechanical systems to be installed in the user's refrigerator that formerly was cooled with ice. Restaurants, groceries, and delicatessens were among the pioneer buyers of electric refrigerators.

In those post-war days, a typical electric refrigerator consisted of a converted ice box with the ice replaced by a brine tank connected by copper tube liquid and suction lines to the condensing unit installed in the basement.

'AUTOMATIC' A MUST

One of the prime considerations in the design of the electric refrigerator was that it had to be automatic. The motor had to be started and stopped automatically so as to prevent the food space in the refrigerator from getting down to 32° so that foods would not be frozen, and to keep the food space from getting too warm, preferably, not above 50°. So automatic control of temperature within reasonable limits was a necessity. In most of the early electric refrigerators, this was obtained by the use of a thermostat or temperature control.

The flow of liquid refrigerant into the evaporator had to be automatically controlled and limited to only as much as was required to vaporize and carry back to the compressor, the amount of heat to be removed in order to keep the refrigerator cold.

Also, with the design of compressors then in use, it was desirable to stop further flow of refrigerant into the evaporator as soon as the compressor was stopped by the thermostat, that is, the expansion valve or float valve had to shut off when the compressor stopped, or very shortly thereafter.

AMMONIA UNSUITABLE FOR 'ELECTRIC REFRIGERATORS'

Ammonia was not suitable, for due to its very high latent heat per pound, it was necessary to circulate and evaporate very little ammonia in order to absorb the small amount of heat to be removed from such a small refrigerator. Thus it was difficult to effectively regulate the flow of such a small amount of liquid ammonia. The expansion valve had to be too accurately designed and made. So some other refrigerant was needed that had a far lower latent heat per pound, that is, that had a much lower net refrigerating effect per pound.

Another disadvantage of ammonia was that it did not mix with oil and moreover, oil is heavier than liquid ammonia and therefore separates out and goes to the bottom of the evaporator. This makes it somewhat difficult to keep the oil automatically moving out of the evaporator and back to the compressor.

Then too, ammonia pressures were a bit high for these small machines, for they required rather heavy construction that was objectionable because of the weight, but more important, because of the high cost of building equipment to withstand the high pressure from ammonia. Also, copper and brass could not be used with ammonia, and this necessitated a steel evaporator, steel piping for refrigerant lines, and a steel condenser. Such construction was unsuitable for small electric refrigerators, especially for the home.

There were also other objections to ammonia, such as flammability.

What refrigerant to use, then, instead of ammonia? There were not too many refrigerants available for selection, in those days. However, there was one available that successfully overcame some of the objections to ammonia.

SULPHUR DIOXIDE (SO₂)

This was sulphur dioxide (SO₂). It was readily available and easily and cheaply made. Its net refrigerating effect in B.t.u. per pound is only about one third that of ammonia, so three times as many pounds must be circulated, which makes it easier on the expansion valve. Liquid SO₂ is somewhat heavier than liquid ammonia, so only about twice the volume of SO₂ must be metered by the expansion valve, but still, it was much better than ammonia in this respect.

The condensing pressure of sulphur dioxide is only about one third that of ammonia, which permits much lighter, cheaper construction.

Copper and brass can be used with SO₂ so the evaporator and condenser can be of copper; so can the lines; and brass and bronze can be used in bearings, bushings, seals, and other parts of the compressor and in line valves, float valves, and expansion valves.

Oil does not mix with SO₂ either, but it is lighter than liquid SO₂, so it comes to the top and can be floated off or otherwise returned to the compressor.

Moreover, SO₂ is not flammable, nor explosive, will not support combustion, and does not break down into objectionable products if exposed to flame. It is, therefore, quite safe from a fire or explosion standpoint.

Another desirable feature of SO₂ is the ease with which refrigerant leaks can be located. Just as ammonia leaks can be located by the use of a sulphur candle that throws off sulphur dioxide, leaks of sulphur dioxide can be found by use of a swab wetted with "strong" ammonia water (about 26% ammonia).

So sulphur dioxide became the refrigerant also universally used in the small systems for homes and stores, and that came to be called "electric refrigeration." For many years not only was SO₂ almost the only refrigerant used in electric refrigeration, but later, when other refrigerants came into use, sulphur dioxide still remained a popular refrigerant. Thousands of refrigeration men were "raised" on sulphur dioxide, knew how to handle it, and liked it despite its defects.

DEFECTS OF SO₂

And it did have some defects, some rather serious ones in fact. One was that, like ammonia, it has a very strong and overpowering odor that is not only objectionable, but in addition sulphur dioxide is highly toxic, that is, very dangerous to breathe. It can and often has, killed plants and small animals. Humans flee from it because of its powerful odor, but it can cause mob hysteria and is therefore dangerous to crowds. If patients are helpless or confined as in hospitals or institutions, SO₂ can be fatal to them in a very short time.

Moreover, if released in rather heavy concentrations, especially in damp weather, it may damage delicate metal mechanisms, for sulphur dioxide absorbs water very readily and a strong, corrosive acid, called sulphurous acid, is thereby formed that attacks most metals and organic matter.

Although the comparatively low condensing pressure of SO₂ is an advantage, the correspondingly low evaporator pressures at ordinary evaporator temperatures used in household refrigerators and in small commercial systems, is a disadvantage.

The boiling temperature of SO₂ at atmospheric pressure is 14° and the evaporator pressure at 5° is 5.9 in. of mercury vacuum, or about 3 lbs. less than atmospheric pressure. This is favorable to the seal and to leaks on the low side of the system generally, for there is little pressure difference to cause leakage.

However, if there is a low-side leak, it is inward, that is, air leaks into the system instead of refrigerant leaking out. If the air is quite dry, it merely causes high discharge pressure, for air is non-condensable at the low-condensing pressure encountered in an SO₂ system.

But air is rarely dry. It usually has some moisture in it, and this is particularly bad in the case of SO₂. The moisture combines with the SO₂ and forms sulphurous acid. If there is a very small amount of moisture, the amount of acid formed may no more than etch some of the surfaces and do no great harm.

Vacuum leaks do not give any evidence of being present until so much moisture has entered that the interior of the system is heavily corroded, the pistons perhaps stuck tightly, the valves ruined, and the expansion valve or float valve damaged.

HUNT FOR THE IDEAL REFRIGERANT

So it is doubly unfortunate that SO₂ should normally have a suction pressure below atmospheric (on a vacuum), for entrance of moisture into the system with the SO₂ may ruin the compressor or in fact, the entire system.

As far as its efficiency, horsepower-per-ton and thermodynamic properties are concerned, sulphur dioxide is an excellent refrigerant, but its very bad odor and high degree of toxicity, its characteristic of forming a highly corrosive acid when combined with water, its low suction pressure that aggravates the probability of moisture getting into the system with the SO₂, and its far-from-ideal oil return ability, soon caused refrigerating engineers 30 years ago to start investigations to locate some other refrigerants, which also had:

(1) Good thermodynamic properties with high efficiency and low horsepower-per-ton; (2) pressure-temperature characteristics suitable for the temperatures for household

refrigerator and small commercial equipment; (3) odorless or at least the odor of which was not so objectionable as either ammonia or sulphur dioxide; (4) not dangerous to breathe, non-flammable, and non-explosive; (5) stable, that is, did not react with moisture nor air nor with any of the common materials of which refrigerating equipment is normally made; (6) leaks easy to detect and locate; (7) simple and inexpensive to manufacture from commonly available raw materials, from by-products of other processes perhaps; (8) physical properties that were favorable—density, viscosity, thermal conductivity, etc.; (9) simple oil-return methods.

(To Be Continued)

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8'5" x 7'	385.20	440.40	449.40	513.80
8'5" x 10'	493.20	559.20	575.40	652.40
8'5" x 11'	523.20	598.80	617.40	698.60
8'5" x 15'	602.40	703.20	702.80	822.40
8'5" x 18'9"	750.40	861.60	870.80	1005.20
12'4" x 10'	643.20	722.40	750.40	842.80
12'4" x 11'	688.80	771.60	803.60	900.20
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(Concluded from Page 1, Column 4) sizes. He interpreted this to indicate greater hot water requirements than were common before the war, resulting from wider use of automatic clothes washers and dishwashers.

Wolkenheim noted a definite trend toward installing water heaters in the kitchen, with more than 50% of the consumers preferring this location to the basement. National or local advertising on the company's water heaters had been seen by 75% of the consumers before they bought the appliance.

The survey indicated that purchasers were spread almost evenly from farms to cities over 50,000 in population. Reasons for patronizing a specific dealer centered around reliable service and local dealer confidence. More than 70% of the consumers lived in homes which were valued under \$10,000.

Most of the sales (62%) were made by electrical appliance dealers; public utilities represented 15%; furniture stores, 9%; and plumbing and heating outlets, 7%.

Tabulations showed that 6% of the consumers replaced a hand-operated gas heater; 13%, automatic gas; 8%, oil; 3%, older Hotpoint models; 42%, other types; and 25% did not have any water-heating facilities.

Appliance Dealer-Mfr. Talks Is NARDA Plan

PHILADELPHIA — Preliminary plans for a series of dealer-manufacturer conferences aimed at the improvement of business conditions for the appliance-radio dealer were drawn up here recently by a group of officials of the National Appliance & Radio Dealers Association.

Clif C. Simpson, managing director of the association, said that a series of about six or seven conferences are expected to be held between now and the association's board of directors meeting which will take place in Chicago July 10.

The holding of such conferences is the number one project on the association's program for the year, Simpson said.

Actual plans made at the meeting here were not revealed immediately by Simpson. Attending the gathering were Lee Pryor, president, and Directors Harry Price of Norfolk, Va.; Mort Farr of Philadelphia; Ted Reina of Brooklyn; and Gardner Cole of Boston.

Simpson indicated that separate retailer committees would confer with manufacturers in the East and Midwest. Specific manufacturers to be called upon were not yet decided, he said.

Simpson said that topics to be discussed were the costs of doing business, trade-ins, servicing, franchising, fair trade pricing, and builder and multiple purchase sales.

"NARDA maintains that manufacturers should more rigidly control the tradeways through which their products travel—from the manufacturing level on down through the distributor, the retailers, and on to the ultimate consumer-user," Simpson stated.

The course the early meetings take will determine the approach to be used in later sessions held by the group, he said.

Dept. Store Sales Rise For Week of April 9

WASHINGTON, D. C.—Though department store sales across the country averaged a 7% gain for the week ending April 9 as compared with the corresponding week last year, the Federal Reserve Board reported that, after adjusting for seasonal factors, the gain for the 1949 period was only about 1%.

This was due, the board said, to the fact that the April 9 week this year was the second before Easter and last year it was the second after Easter.

The board noted also that sales gains this year were greatest in the eastern section of the country and poorest in the west. The Dallas district reported a 7% loss while the Kansas City district held even. San Francisco was up only 2% and St. Louis up 3%.

In the East, the Richmond district led with a 20% gain. The Cleveland district was up 17% and the Boston and Philadelphia districts each reflected a gain of 16%.

NEWA Convention To Open In Cincinnati--

(Concluded from Page 1, Column 3) will talk on "Appliance Merchandising in 1949."

Chairmen of appliance division committees will constitute each of two panels on the morning and afternoon of May 3 and the discussions, which will include questions from the floor, will be led by moderator W. G. Peirce, Jr., vice president and chairman of the appliance division.

The morning panel session will include chairmen of the legislative; major appliances; small appliances; and radio, television, and tubes committees.

The second panel session will represent rural markets, sales promotion and sales training, store management and store arrangement, and service and repair parts committees.

In addition, during the appliance division meetings, there will be an exhibit of essential facilities and equipment for the installation, maintenance, and repair of television receivers.

Mayor Albert D. Cash of Cincinnati will deliver an address of

welcome at the association's general meeting.

Guest speakers will be Dan O'Keefe, editor, *Achievement Magazine*, whose subject is "Understanding Free Enterprise the Human Way"; and Tom Collins, publicity director, City National Bank and Trust Co., Kansas City, Mo., who will deliver a talk on "This Promising World."

Also scheduled is a presentation of the James H. McGraw Award to a member of the association for outstanding service to the electrical wholesaling industry. President E. B. Ingraham, Pyle, and Kendall B. DeBevoise, NEWA counsel, will also address the May 4 meeting.

For the first time, the association will award certificates of honorary life membership to approximately 25 former members who are now retired. They have been invited to be present at the general convention session to receive this recognition of their years of service to the association and the industry.

Apparatus and supply division

meetings will hear guest speaker E. E. Potter, vice president, General Electric Co.; J. J. Kaske, chairman warehousing committee, who will give a special report on modern methods of inventory control, and Carl Christine, secretary-manager, St. Louis Electrical Board of Trade, whose demonstration-talk on adequate wiring is titled "I Can't Afford It—Can You?"

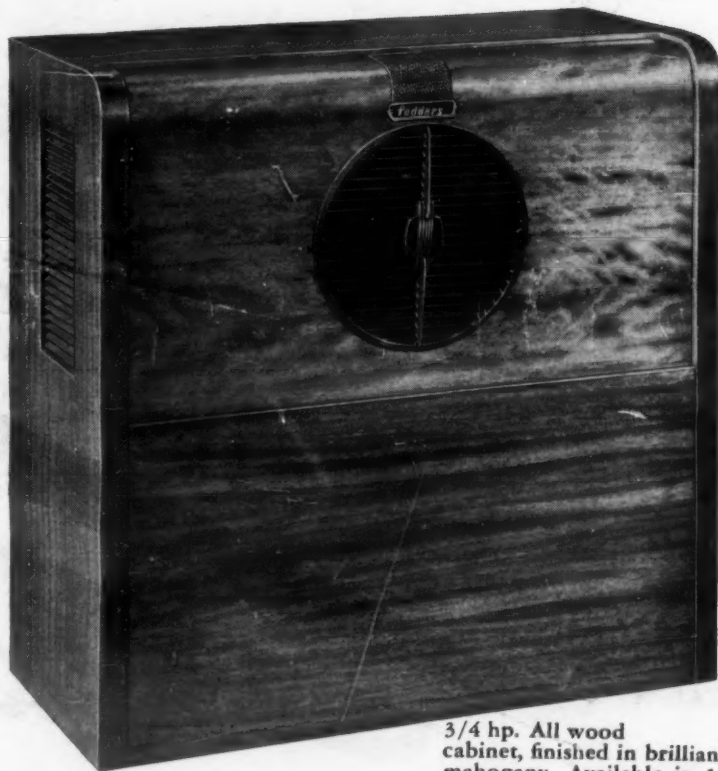
D. M. Salsbury, vice president and chairman of the apparatus and supply division, will serve as moderator at the panel sessions on May 5 and 6.

On the first day the panel will be composed of chairmen of the fan and ventilating, lamp, residential lighting, conduit, conduit fittings and boxes, and industrial electronics committees.

The concluding panel will represent the apparatus and control, wires and cable and armored conductor, wiring devices, outside construction materials, and industrial and commercial lighting committees.

Elections of the president and other officers will be announced following the luncheon meeting of the new Board of Governors on May 4. A cocktail party for members and guests is scheduled the same day.

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